

January

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AMAZING STORIES

HUGO GERNSBACH
EDITOR



Stories by
H.G. Wells
Jules Verne
A. Hyatt Verrill

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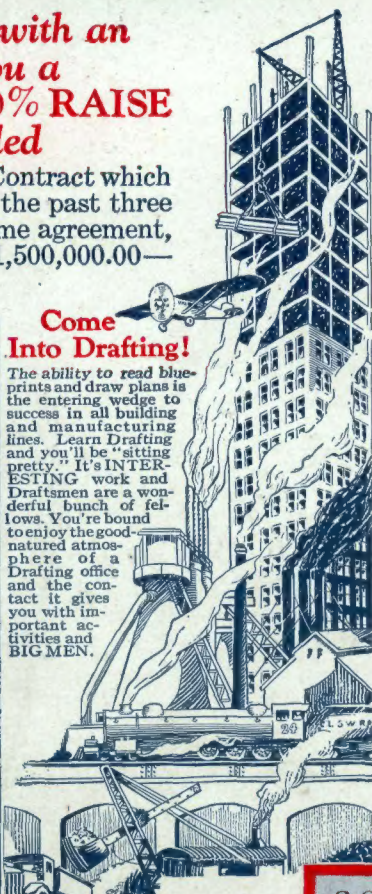
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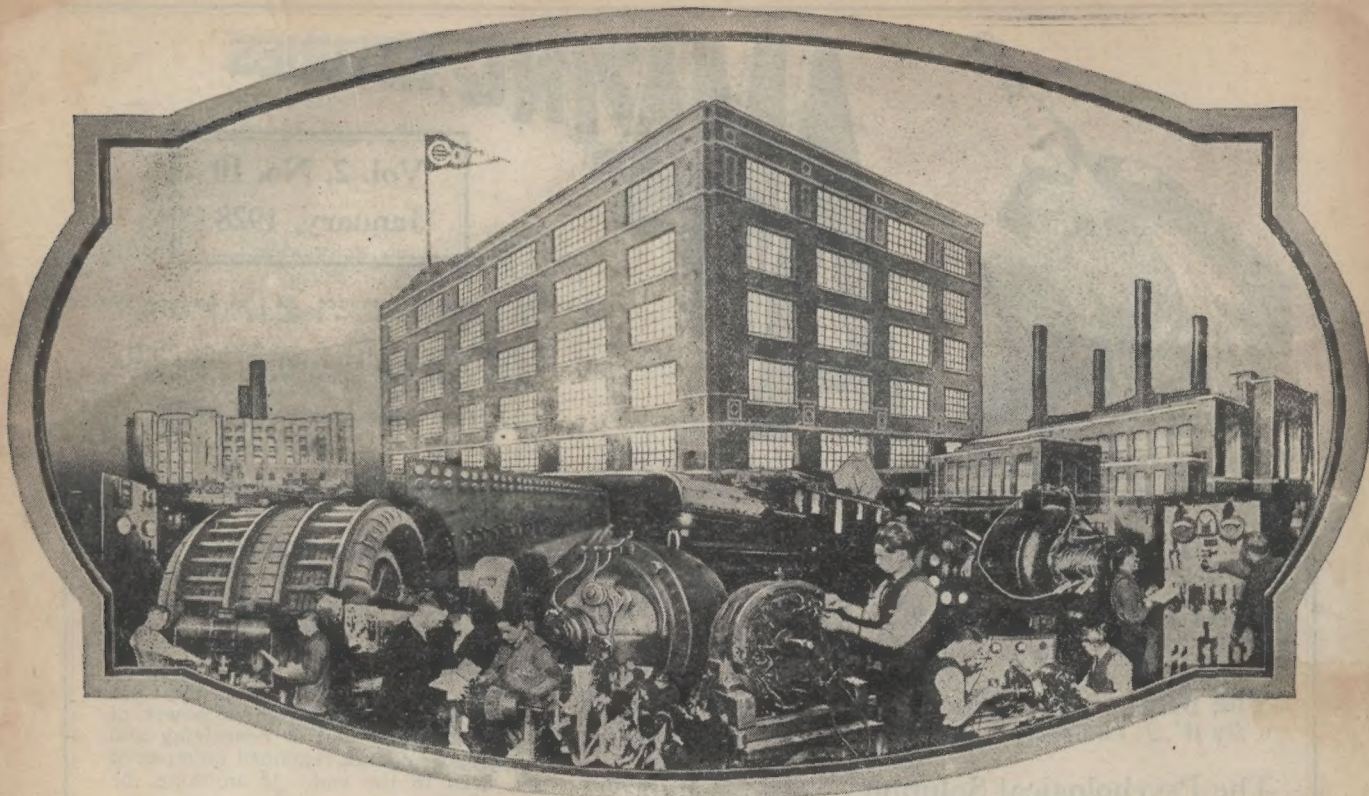
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PORTRAYING HIS IMMORTALITY

AMAZING STORIES

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Owners of Broadcast Station WRNY

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Our Cover

This month depicts a scene from "The Comet Doom," by Edmond Hamilton, in which the crouching, shackled scientists are surprised and horrified by the entrance of the leader of the visitors from the comet—a grotesque, nightmarish figure, whose body was a cylinder of smooth black metal instead of flesh; who had four spider-like metal lower limbs and four metal tentacles instead of arms. On top of this body was a small cube which could be turned at will in any direction, and in each side of which was a single circle of soft glowing light, instead of eyes. It seemed to be of a high order of intelligence.

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"Robur the Conqueror," by Jules Verne, copyright 1911, by Vincent Parke & Co. (Parke, Austin & Lipscomb Co.)

In Our Next Issue:

THE MASTER OF THE WORLD (A Serial in 2 Parts) Part I, by Jules Verne. Nearly twenty years after writing "Robur," Jules Verne turned once again to the flying machine, and in 1905, the year of his death, this sequel to "Robur the Conqueror" was published. The inventive power of this aged master and his skill in conceiving and portraying a dramatic climax remained unimpaired in this story, even to the end. If anything, he exceeded himself.

BARON MÜNCHHAUSEN'S SCIENTIFIC ADVENTURES. (1. I Make a Wireless Acquaintance), by Hugo Gernsback, in which the author introduces the wily Baron's "reincarnation" in a most amazing and outstanding manner. You will chuckle with glee over the entire series of the Baron's remarkable exploits, but you will gain plenty of good scientific instruction, too. This is the first instalment of THE scientific serial of the year.

THE REVOLT OF THE PEDESTRIANS, by David H. Keller, M.D. What will happen to us in centuries to come if we continue to ride in automobiles? It is a question which we may well ask ourselves. Our new author, who is himself a doctor, gives us a vivid picture with absorbing detail of the not unlikely results. Signs of the truth of parts of the story can be seen already in the larger cities.

THE FOURTEENTH EARTH, by Walter Kateley. Scientists have steadfastly maintained that there must be other inhabited planes besides our own. This author has woven a charming tale around his idea where such planes might be.

And other stories.

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When I first started making real important money I used to go down to the bank, draw out a roll—and just thumb it over in my office and grin! That's how good it felt to get success and big money, after five years at a low-paid job.

Success and Big Money Were For Others, Not Me

Believe It or Not, That Was What I Thought of Myself—Just Twelve Short Months Ago

I'M telling you, just one year ago I'd never seen a hundred dollar bill in my life outside of a bank.

You'd think I'm kidding you if you saw the fine Radio business I own now. But it's gospel truth. Just twelve months ago I was only a poorly paid clerk, and I thought success had passed me by.

All my crowd in those days—the fellows I met in the pool-hall and at the bowling alleys—said a fellow had to have money to make money. They claimed there was no chance for a fellow whose family didn't have money or some business to start him out in. And I'd decided they must be right.

I guess at that time I had just about given up hope. I thought there must be some kind of a mystery about making a lot of money. But I was due for a big awakening.

Did I get it? Oh, boy! Read my story and judge for yourself.

IT all started one day last summer, when Helen, the girl I wanted to marry, was leaving for the seashore. Of course I went to the station to see her off.

As I stepped onto the station platform Bob Oakes and Wilmer Pratt had just rolled up in their cars. They climbed out with their arms full of bundles—books, expensive candy, flowers, all sorts of things. Well sir, I wish I could have swallowed in one gulp the little box of drugstore candy I had bought for Helen—it certainly looked pitiful beside all that stuff.

We three stood there talking to Helen until train-time, while Helen's mother looked me up and down. Like any young girl's mother would, she had my financial standing already sized up within thirty-five cents. Cheap suit, cheap hat, she took it all in. And you could see on her face all the time what a lot of nerve she thought I had to give Bob and Wilmer a run for Helen.

Well, to make a long story short, Helen was nice, but her mother stood there looking scornful whenever she glanced my way, and she hardly spoke to me at all. I felt about as welcome as the measles, and as uncomfortable as the itch.

I began to wish that I and my cheap suit and cheap hat could sink through the floor, but I stayed there and stuck it out.

WHEN Helen's train finally left, I slunk home, ashamed and humiliated. I went upstairs to my room and sat there with a lump in my throat, getting hotter and hotter and more ashamed of myself. Then I began to see red and redder.

Finally I jumped up and banged the table. "I'll show 'em," I growled through clenched teeth. "There must be some way for a man to make real money!" An idea suddenly flashed through my head.

Hastily I began thumbing the pages of a magazine on the table, searching for an advertisement that I'd seen many times, but passed up without thinking, an adver-

tisement telling of big opportunities for trained men to succeed in the great new Radio field. With the advertisement was a coupon offering a big free book full of information. I sent the coupon in, and in a few days received a handsome book, telling about opportunities in the Radio field and how a man can prepare quickly and easily at home to take advantage of these opportunities. I read the book carefully and when I finished it I made my decision.

WHAT'S happened in the twelve months since that day, as I've already told you, seems almost like a dream to me now. For ten of those twelve months I've had a Radio business of my own! At first, of course, I started it as a little proposition on the side, under the guidance of the National Radio Institute, the outfit that gave me my Radio training. It wasn't long before I was getting so much to do in the Radio line that I quit my measly little clerical job, and devoted my full time to my Radio business.

Since that time I've gone right on up, always under the watchful guidance of my friends at the National Radio Institute. They would have given me just as much help, too, if I had wanted to follow some other line of Radio besides building my own retail business—such as broadcasting, manufacturing, experimenting, sea operating, or any of the score of lines they prepare for you. And to think that until that day I sent for their eye-opening book, I'd been wailing "I never had a chance!"

NOW I'm making real money, own a good car, stand high in my town, can borrow money at the bank any time I want it. I'm getting some real fun and enjoyment out of life, not just existing from pay-day to pay-day.

And—just listen to this! Bob was in my place only the other day, and asked me for a job! Wilmer is still getting along pretty well on his father's money, but he'd trade places with me any day.



And Helen? Well—the honeymoon will be spent in Honolulu, starting two months from tomorrow!

HERE'S a real tip. Think it over—are you satisfied? Are you making enough money, at work that you like?

This new Radio game is a live-wire field of golden rewards. The work in any of the 20 different lines of Radio is fascinating, absorbing, well paid. The National Radio Institute—oldest and largest Radio home-study in the world—will train you inexpensively in your own home, to know Radio from A to Z and to increase your earnings in the Radio field.

Take another tip—No matter what your plans are, no matter how much or how little you know about Radio—clip the coupon below and look their free book over. The information it will give you is worth a few minutes of anybody's time. You will place yourself under no obligation—the book is free, and is gladly sent to anyone who wants to know about Radio. Just address: J. E. Smith, President, National Radio Institute, Dept. 1-A2 Washington, D. C.

J. E. SMITH, President.
National Radio Institute,
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Dear Mr. Smith:

Please send me your 64-page free book, printed in two colors, giving all information about the opportunities in Radio and how I can learn quickly and easily at home to take advantage of them. I understand this request places me under no obligation, and that no salesmen will call on me.

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*"In the cross of Christ I glory, towering o'er the wrecks of time,
All the light of sacred story gathers round its head sublime."*

THUS have Christian people sung from generation to generation, time out of mind. And this grand old hymn strikes awe and reverence to every Christian heart. It is grand because of its stately measure, because of its past associations, and because of its all-excelling theme.

Jesus, the God-Man, coming into the world to teach, to heal, to comfort, to inspire, and to redeem! Jesus, the Arch-Martyr of all time, sealing and perpetuating His work by giving up His life on the rugged cross standing a-top of Golgotha! Jesus, the triumphant redeemer, bursting the bonds of death, and blazing a shining way through the darkened zone separating the world of temporary and changing things from the world of things that are eternal and unchanging!

But while the cross is the chief symbol of Christianity, the Christ of our worship is neither dead nor dying. Rather, He is a triumphant, living, redeeming Christ, the great majority of

whose teachings were designed to liberate men, women, and children from sickness, poverty, sorrow, disappointment, and unhappiness. He said that we could get any thing we desire if we would only pray for it in a certain way. He also said that if one would first seek the kingdom of God and His righteousness, his material welfare would take care of itself.

The new and simple science of Practical Psychology has found that these remarkable promises of Jesus are not only possible of fulfillment, but actually easy of fulfillment. This new science is not a religion, but it has found the kingdom of God in the human mind, and has led a great many people into that kingdom, thereby enabling them to make their lives anything they wanted them to be. It has also found that by a certain mental type of prayer, or intense desire, one may get the specific things he desires, just as Jesus said.

Judge Daniel A. Simmons is a prac-

tical psychologist whose reputation is established and secure. He is well known as a psychologist, as an author, and as a lecturer, and has thousands of students all over the world. He has written a plain and simple manuscript message entitled "Realization," which introduces the reader to the kingdom of God within himself, and teaches him how to begin drawing upon the wealth of that kingdom for the healing of his diseases, for increased income, for larger success, for the accomplishment of the things he wishes to accomplish, and for love and happiness. We will be glad to send a copy of "Realization," fully prepaid and

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AMAZING STORIES

THE MAGAZINE OF SCIENTIFICTION

HUGO GERNSBACK, *Editor*WILBUR C. WHITEHEAD, *Literary Editor*DR. T. O'CONOR SLOANE, Ph.D., *Associate Editor*C. A. BRANDT, *Literary Editor*

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OUR UNSTABLE WORLD

By HUGO GERNSBACK



ONE of the remarkable deficiencies of the human makeup is the fact that so little attention is given to the instability of the world upon which we live. I use the word "upon" purposely, for the following reason:

It is known to science—and geology readily proves it—that the age of the earth's crust, since it has cooled down, is at least one and one-half billion years. Science teaches us that living beings actually roamed on this Planet over 200,000,000 years ago. The first humans, such as we know them—that is, prehistoric man—probably date back some 500,000 years. During this interval of time, which is large as far as we humans are concerned,—but trifling in geological time—many things have happened to the earth's crust.

We need not be concerned about what happened to the earth billions of years ago, before it had solidified and was able to sustain life, but will concern ourselves only with the comparatively short period of time after the earth had taken on a crust. During that time, such cataclysms as the Flood, the Ice Age and many others occurred at intervals and each time much of the population of the earth of that period was wiped out. Such cataclysms as the Flood, for instance, are not just Biblical; they are based upon solid fact of which science has excellent proofs today.

In a recent scientific article, I gave a new theory of the Flood. I pointed out that the Noachian flood may well have been caused by a wandering celestial body, which coming close within some thousands of miles of the earth, would have affected our oceans to such an extent, that they would have raced around the earth inundating practically everything. After the celestial body drew away once more, the flood receded. Of course, most of man's handiwork was wiped out by this flood, as it was by others. The same is true of the Ice Age, of the periodical upheavals of the earth crust and the consequent burying of everything that existed on the surface of our Planet.

One thing is certain; these upheavals and cataclysms are nothing unusual in the history of our earth. Even our present day earthquakes—tiny as they are—are an excellent proof that the world is not stable and may not be for billions of years to come. Right now, the thickness of the solid crust of the earth may be compared to the thickness of an orange peel in relation to the rest of the orange.

I have made these introductory remarks, simply to point out that our present civilization and so-called high culture may have occurred dozens and even hundreds of times in the actual history of this Planet. I even go further and assert that our present so-called high civilization has been eclipsed by far, many times, during the past history of our Planet. It is even possible that such civilization may not have been at all a civilization of humans, but may have been some other form that we can only dimly guess at.

After every major upheaval, of course, all traces of civilization are wiped out completely. Such an upheaval may be so tremendous, as to turn everything from the surface of the earth topsy-turvy to an extent of some several miles deep. For that reason, nothing from a previous civilization could remain. Suppose every human being on earth were to be killed by the gases of some wandering comet today *without* any accompanying upheaval. How much of our present civilization would remain after 50,000 years? The destructive forces of the elements, such as rain, wind, storms and water, would level everything in less than a thousand years. At the end of 50,000 years, nothing would remain perhaps, except in subterranean cavities, providing no moisture had gotten into them. Ten thousand years, after all, is only a ridiculously small fraction of time in the life of our Planet. It is at the rate of a thousandth of a second as compared to the beginning of the human era. In other words it is practically nothing.

So we have the spectacle, that there is nothing at all stable in our world; that everything comes and goes and is replaced by something else; that the humans who now reign and are masters of the earth, were at best only an accident. After our civilization vanishes and the world becomes habitable once more, the chances are all against it that a succeeding civilization will be similar to ours; it might be some superinsect or some other form that we cannot at all imagine. These, of course, are radical ideas, but not half as radical as the actual history of this Planet tends to show. Life itself presents such a tremendous amount of variety, that anything in the way of life on this Planet is within the bounds of possibility.

It probably takes an average of a quarter of a million years to develop human intelligence, as we know it. But we should distinguish between various kinds of intelligences. Many scientists, for instance, think that the ant surpasses us greatly in intelligence. Ants know how to govern themselves far better than we do. They exceed us in common sense a dozen different ways. Furthermore, different terrestrial conditions will make for different sorts of intelligences. It is quite possible, that during one of the major upheavals, atmospheric and temperature conditions were totally different and perhaps will be totally different again after the next major upheaval.

Human beings, as we know them today, might not be able to maintain themselves under such conditions. Yet it is certain, that given sufficient time, some high intelligence will arise, to become master of this Planet. As the Planet grows in age, these upheavals will become less and less frequent, because the earth's crust continues to become thicker. There is always the possibility that some exterior influence, such as a wandering celestial body may cause tremendous disturbances, but these seem to be comparatively rare and possibly do not happen more than once in a hundred million years, if that often.

Mr. Hugo Gernsback speaks every Tuesday at 9.30 P. M. from WRNY on various scientific and radio subjects.

The COMET DOOM

by Edmond Hamilton



For a moment he struggled frantically, then heard a hoarse cry, and wrenched his head up to see a dark shape speeding across the plateau from the opposite edge. It was Coburn. Twisting in the remorseless grip of the two with whom he battled, he had a flashing glimpse of Coburn racing toward the machine, and then he uttered a cry of agony. From one of the hovering cones above, a shaft of the light-ray had flashed down and it struck Coburn squarely. A moment he was visible, aureoled in a halo of blinding light. . . .



DESTINY.

We know, now. Destiny, from the first. Out in the depths of space the colossal conspiracy came into being. Across the miles and years, it sped toward its climax. Flashed toward our earth, toward that last supreme moment when a world stood at the edge of doom. Then—fate spoke.

Circling planet, blazing sun, far flung star, these things but the turning wheels of fate's machinery. And that other thing, that supernally beautiful, supernally dreadful thing that flamed across the heavens in a glory of living light, that too but a part of the master-mechanism. Destiny, all of it, from the beginning. And that beginning—

The story, as we know it, is Marlin's story, and the beginning, to him, was always that June evening when he first came to the Ohio village of Garnton, just at sunset. He had trudged up over the ridge of a long hill, when the place burst suddenly upon his vision.

Before him, sweeping away to the misty horizon, lay the steel-blue expanse of Lake Erie, smoke-plumes far out on its surface marking the passage of steamers. In the west the setting sun glowed redly, its level rays tipping the drifting clouds with flame. And just below him, stretched along the lake shore, lay Garnton, a straggling assemblage of neat, white-painted buildings.

The sight was a grateful one to Marlin's eyes, and he contemplated it for a few moments from the ridge, inhaling great breaths of the sweet, cold air. A plump little man of middle age, dressed in stained khaki clothes and crush hat, rucksack on back, his blue eyes surveying the scene below with evident pleasure. A large white building beside the lake caught his eye, and he gazed at it with sudden intentness.

"Hotel," he muttered to himself, with conviction. And then, in a tone rich with anticipation—"Supper!"

The thought spurred him to renewed action, and hitching his knapsack higher on his shoulders, he began to tramp down toward the village. For though Marlin had so far yielded to the gypsy lure of the open road as to spend his vacation in a walking-tour, he was as yet not at all insensible to the civilized comforts that might be obtained at hotels. It was with quickened speed that he trudged on toward the village, over a rutted dirt road. Even so, twilight was darkening by the time he entered the dim, quiet hotel in quest of room and supper.

Complete darkness had descended on the world, and complete contentment on Marlin, by the time he sauntered out of the big dining-room and looked about in inspection of his surroundings. He wandered into the lobby but found it uninviting. The few magazines there were of the type associated with dentists' waiting-rooms, and the only newspaper in sight was in the joint possession of three oldsters who were fiercely arguing a question of local politics. When Marlin ventured to interject a remark, they regarded him with cold suspicion, and somewhat abashed he retreated to the wide veranda.

It was quite dark on the veranda, but he managed to stumble into a chair. Then, a moment later, he discovered that the chair beside him was occupied by the proprietor of the hotel, a very fat man who sat in silence like a contemplative Buddha, hands clasped across his stomach, chewing tobacco and gazing out into the darkness. His attitude was of such calm dignity that Marlin hesitated to disturb him with foolish speech, but, unexpectedly, the Buddha spoke.

"Tourist?" he asked, without turning, speaking in a deep, rumbling voice, like that of a questioning judge.

"Hiking," Marlin answered; "I've walked half-way around the lake, from my home-town over in Ontario. I guess I'll rest here for a day or two, and then get a boat back."

The fat man spat over the veranda-rail, accurately, and then uttered a grunt of acquiescence. He offered no further remark, and the two sat on in silence.

Looking out over the lake, Marlin absorbed with quickening interest all the beauty of the scene. There was no moon, but stars powdered the heavens like diamond-dust on black velvet, shedding a thin white light on the dark, tossing surface of the lake. Gazing into that vista of cool, limitless night, the whole world seemed shrouded in quiet peace.

Abruptly, at the eastern horizon, a ghostly green radiance began to pour up from behind the distant waters. It pulsated, gathered, grew stronger and stronger. Then, seeming to clear the horizon with a single bound, there leaped up into the sky a disk of brilliant green light, as large as the absent moon. Like a huge, glowing emerald of fire it was, and from it there streamed a great green trail of light, stretching gigantically across the heavens.

The fat man, too, was regarding it.

"It gets bigger each night," he commented.

Marlin agreed. "It certainly does. You can see the difference from one night to the next. It says in the papers that it's coming millions of miles closer each night."

"They say it ain't going to hit us, though," remarked the other.

"No danger of that," Marlin assured him; "on the 14th—that's three nights from now—it will pass closest to earth, they say. But even then it'll be millions of miles away, and after that it'll be going further away all the time."

The fat man became oracular. "A comet's a queer thing," he stated, his eyes on that green splendor of light.

Marlin nodded assent. "This one's queer enough,

I guess. What with its green color, and all. They say no one knows where it came from or where it's going. Just comes out of space, rushes down toward the sun and around it, and then rushes back into space, like it's doing now. Like a big tramp, wandering around among the stars."

The hotel-proprietor regarded him with new respect. "You must know a good bit about them," he said.

Flattered, Marlin yet deprecated the compliment. "Oh, I just read the papers a good bit. And there's been a lot in them about the comet since they first

IN presenting this new author to our readers, all we can say is that we hope that this story will not be the last one by Mr. Hamilton to appear in AMAZING STORIES. For sheer audacity of imagination and for the presentation of good scientification, we believe that Mr. Hamilton will soon find a place of his own in the minds of every reader. There is so much that is novel, so much that is interesting in this story, that we are sure that it will be widely acclaimed by every one.

discovered its presence in the sky," he answered.

"But what's it made of?" asked the other. "Is it solid, like the earth?"

The smaller man shook his head. "I don't know. Some say it's solid at the nucleus—that's the bright spot in its head—and some say that the whole comet's nothing but light and gas. Nobody knows for sure, I guess."

Together they stared up at the shining thing. The fat one shook his head in slow doubt.

"I don't like the looks of it," he asserted. "It's too big—and bright."

"No harm in it," Marlin assured him; "it won't come near enough to hurt *us* any. They've got it all calculated, you know, all worked out. These professors—"

Unconvinced, the other continued to stare up at the brilliant comet. And Marlin too regarded it, chin in hand, fantastic thoughts passing through his brain.

Many another chance watcher was gazing up toward the comet that night. The thief prowling in the shadows looked over his shoulder at it, muttering curses against its green, revealing light. The hospital-patient, lying unsleeping in his dim-lit chamber, watched it through his window with sick eyes. The policeman, sauntering through darkened streets, spared it a casual glance.

And in the darkened observatories, others, hurrying, excited men, worked unceasingly with lens and spectroscope and photographic plate. With a myriad delicate instruments they sought for data on the nearing comet, for this great green wanderer from outer space, known to be the largest and speediest comet ever to enter the solar system, was swinging out again from the sun on its outward journey into space. There remained but a few nights more before it would have attained its nearest position to earth, and after that it would flash out into the void, perhaps to reappear thousands of years hence, perhaps never to return. From its first appearance as a far, tiny speck of light, their telescopes had watched it, and would watch it until it had receded again into the infinity of inter-stellar space. Data!—that was their cry. Later all could be examined, marshalled, correlated; but now, if ever, data must be obtained and recorded.

Yet they had found time, from the first, to send out reassuring messages to the world. The comet would not come within millions of miles of earth, for all its size and brilliance, and it was impossible for it to collide with or bring any harm to the earth. Though no man could know what lay hidden at the nucleus, the comet's heart, it was known that the great, awesome coma and tail were nothing but light and electrical force and tenuous gases, with hardly more mass than the aurora borealis, and as harmless. There was nothing to be feared from its passing.

With that calm reassurance, few indeed felt any anxiety concerning the thing. And with that reassurance in mind, Marlin could repeat to the doubting man beside him—"It won't affect us any. The thing's been all worked out."

But to that his host made no answer, and for a time they sat in thoughtful silence.

Abruptly there drifted across their vision, some distance out on the lake, but seeming quite near, a great, high-built boat, its four decks ablaze with yellow light. Very clearly, over the water, they could

hear the sound of its paddles, and could hear, too, a faint, far sound of singing, and a ghostly thrumming of ukeleles and guitars.

The fat man nodded toward it. "Excursion-boat from Cleveland," he pronounced.

As it came nearer, the sounds from it came more distinctly to their ears, borne on a little breeze. Clear young voices, singing a popular melody of the day. Tuneful young voices and throbbing music, drifting across the summer night. Fascinated, Marlin watched it. And over in the eastern sky, the flaming orb seemed to be watching also, like a great malignant eye, green, baleful, immense. . . .

IT was on the next morning that there appeared in the newspapers the first dispatch from the Buell Observatory. It has sometimes been stated that that first dispatch "aroused widespread interest," but such an assertion is quite untrue, as even a casual inspection of the newspapers for that date will disclose. Only a few of them printed the item at all, and those who did so, assigned it inconspicuous positions.

The message itself was signed by Lorrow, the head of the Buell institution, and stated simply that a slight increase in the earth's orbital speed had been detected during the last twenty-four hours. It added that while this apparent increase might be due to erratic instruments, it was being given further attention. A few hours later a second message announced that the increase had been definitely confirmed, and that it was somewhat greater than had been at first believed.

To astronomers, the news was startling enough, for to them this sudden acceleration of the earth's speed seemed quite inexplicable. Their calculations assured them that it could not be due to the influence of any known heavenly body, but what, then, was its cause? They attacked the problem with exasperated interest.

Outside of astronomical circles, though, it is doubtful if there were a thousand people who gave any serious attention to those first two statements. In science, as in all else, the public's attention is centred always upon the spectacular, and it took but little interest in this matter of fractional differences in speed. The only reference to it in the newspapers that evening was a short message from the Washington Observatory, which confirmed Lorrow's discovery and stated the exact amount of speed-increase, with a staggering array of fractions, decimals and symbols. It also stated that this acceleration was only momentary, and would disappear within the next twenty-four hours.

So the few puzzled over the matter and the many shrugged their shoulders at mention of it, while the sun sank down into the west and darkness stole across the world. And then the night was split by the rising comet, driving up above the horizon and soaring toward the zenith. It flashed across the heavens in green glory and then it too rocketed down toward the west, while in the east there crept up the gray light of dawn. It was then that there came to the world Lorrow's third message.

It sped along a thousand humming wires, roared from the presses in a thousand cities, was carried shouting through ten thousand sleeping streets. Men woke, and read, and wondered, and stared at each other in strange, dawning fear. For instead of returning to its normal speed, they learned the earth

was moving faster and faster through the heavens, and already, as a consequence of this increased speed, was beginning to veer outward a little from its accustomed orbit.

"If this inexplicable acceleration continues," Lorrow wrote, "and the earth veers still further outward, it will be brought uncomfortably close to the head of the passing comet."

A sudden doubt, a moment of chilling fear, oppressed the world as those first words of warning were flashed around it. Had Lorrow's message been allowed to stand uncontradicted, it might well have precipitated a panic then and there. But it was not allowed to do so, for before many minutes had passed, there came from a score of observatories indignant denials of Lorrow's statements.

They admitted that the unexplained acceleration of the earth's speed was apparently continuing, but they denied that the planet had swerved from its orbit, and poured scorn upon the idea that it might collide with the nearing comet. Such a thing was impossible, they asserted, and quoted innumerable authorities to prove that the earth would not come within millions of miles of the comet. Lorrow they denounced as a cheap alarmist who sought to gain publicity for himself at the expense of the world's fear. There was no danger. They repeated it, they insisted upon it. There was no danger.

Such statements were effective, and by means of them the first fears of the public were soon calmed. Here and there one might read with knitted brow and look up in sudden apprehension, and here and there in observatories men might glance at each other with startled eyes, but in the main, the currents of life pulsed through their accustomed channels, and through that long June day men walked their ways as always.

It is with a stilled, incredulous wonder that we now look back upon that day. Knowing what was to happen, what was happening even then, we see that day as the last of an era, the final hour of the world's doom. But at the time, it must have seemed like any other day in early June.

Children released from long months of school would be running and shouting, no doubt. There would be men gazing out of office-windows, their thoughts on green links and winding roads. And women chatting in the markets. And sleepy cats, on porches, sprawling in the sunshine. . . .

The newspapers that evening announced that the comet would be larger when it rose that night, and explained that this increase in size was due to the fact that the great green wanderer was still steadily nearing earth, on its way out of the solar system. On the next night it would reach its closest position to earth, they stated, and thereafter would soon grow smaller until it vanished from sight entirely. It was believed that when the comet departed from the solar system, the mysterious acceleration of the earth's speed would disappear also. In any case, they repeated, there was no danger. . . .

Night came, and almost at once the eastern heavens flamed ghastly green. Across the sky streamed brilliant trails of emerald light, obscuring the familiar stars, tarnishing their glory. The radiance in the east condensed, dazzled, and then there flamed up above the horizon—the comet.

It rose that night like a great green sun, immeasurably increased in size and splendor, flooding the

earth with its throbbing radiance. The tremendous coma, the brilliant nucleus, the vast tail—they flared in the heavens like a new green Milky Way. And across the millions who watched, there sped whispers of awe.

For millions there were who watched the comet rise that night. From the roofs and windows and streets and parks of great cities, they watched it. Savages in deep jungles prostrated themselves before it, uttering weird cries of fear. Sailors far out at sea looked up toward it and spoke of ancient superstitions and old beliefs. Men in prison gazed up at it through barred windows, with dim wonder. Fearful men pointed toward it and spoke of the wrath of God.

Yet even then, for all the millions who watched in awe, there were tens of millions who merely glanced at it as one might at an interesting spectacle, who discussed it weightily, or giped at the fears of the timid, or who paid it no attention at all, going about their good or evil business unheeding. And as the hours marched on, fearful and indifferent alike sought sleep, while over forests and fields and seas and steeped cities, the giant meteor soared across the heavens. Almost it seemed to grow greater with the passing of each hour, and the whole west flared with livid light as it sank down toward the horizon there.

From a window perched high above the canyoned streets of New York city, a single man watched the setting of the comet. Through the night the news of Amsterdam and Hong-Kong and Valparaiso had passed through his ears and brain and fingers, from clicking telegraph to clicking typewriter, to be scattered broadcast by the presses in the building beneath him. Now, as he leaned beside the open window, the cigarette in his hand drooped listlessly, and beneath the green eye-shade his eyes were very tired.

A sudden metallic chattering at the other side of the room aroused him, and instantly he turned and hastened toward the operating table. With a swift, automatic movement he slid fresh paper into his typewriter and began tapping out a copy of the message. As the instrument beside him clicked on, however, his body tensed in the chair, and he struck the typewriter-keys with a sudden clumsiness. When the sounder's chattering had ceased he sat motionless, staring at the words he had written, then rose, trembling, and walked with dragging steps toward the window.

Around and beneath him lay the sleeping city, silent beneath the first gray light of dawn. Westward, the Jersey heights loomed darkly against the sky, and low above them spun the gigantic comet, its splendor dulling a little in the pallid light of dawn. It was the comet that the man at the window was watching, his face white, his lips working.

"It is doom!" he whispered.

From far below came a sudden whistling of tug-boats, clamorous, strident. It ceased, and a faint echo of his words murmured mockingly in his ears.

"Doom!"

He turned suddenly and reached for a telephone, pressing a button at its base. When he spoke into the instrument, his voice was dry and level.

"Collins?" he asked. "This is Brent, first night-operator. Take a bulletin that just came through. Ready?"

"Washington, D. C., June 14th. Special Bulletin. (All papers copy). Astronomers at the Washington Observatory have just discovered that as a result of its mysterious acceleration in speed, the earth has left its proper orbit and is moving headlong through space toward the head of the oncoming comet. The latest spectroscopic observations reveal the presence of vast quantities of poisonous gases in the coma and tail of the comet, so if the earth continues in its present course and passes into the comet's head, the result will be the swift asphyxiation of all life on this planet. It is estimated that before midnight tonight the earth will have definitely passed inside the gravitational grip of the comet, and after that it will be only a matter of hours until the end."

That night, when the giant comet again rose in the east, it blazed in the sky like a great sea of green fire, its whirling coma filling half the heavens, its brilliant nucleus shining with an intolerable radiance. And its light fell down across a world gone mad with fear.

The shouts of men, the sobbing of women, the crying of children; the ringing of bells and screaming of whistles that heralded the terror across the earth; the chanting voices of crowds that kneeled in tearful prayer, the hoarse voices that called for them to repent; the roar of automobiles that fled north and south and east and west, in a blind effort to find escape where there was no escape; all of these sounds and ten thousand others combined to form one vast cry of utter terror that leaped from the world as from a single voice.

But as the inexorable hours marched on, and the sea of fire above grew greater and greater, nearer and nearer, a strange stillness seized the world. The mad shouting and the mumbled prayers died away, the fear-crazed figures in the streets sank down and sprawled in an apathy of hopeless terror. It was the end. For earth, and for man, and for all the works of man, the end. Thus sunken in a lassitude of dull despair, silent as a planet peopled by the dead, the world drove on toward its doom.

AT the very moment when the Washington Observatory's fateful message was being flashed around the earth, Marlin was leaving Garnton, heading north across the lake toward the Ontario shore. And while the world writhed beneath the panic caused by that message, he remained entirely ignorant of it. During the two days which he had spent at Garnton, he had read Lorrow's first dispatches regarding the earth's sudden speeding-up, but in common with most of the world, had paid them but little attention. When he left the village that morning, nothing was further from his mind.

It was in a small fishing-cruiser that he left, a dilapidated, noisy-motored little boat whose aroma strongly proclaimed its calling. By chance Marlin had discovered that the boat's owner, a tall, silent and weather-beaten fisherman, intended to cross the lake at dawn that morning, and had prevailed upon him to take a passenger. So when the little craft headed out from shore at sunrise, Marlin sat at its bow, gazing into the gray banks of fog that spread over the surface of the lake.

Steadily the cruiser chugged onward, through lifting veils of mist. By the time the fog cleared, the

land behind had dwindled to a thin, purple line. Then that too had vanished, so that they seemed to move upon a boundless waste of waters.

The sun, lifting higher in the east, flooded the world with its golden light, and as they forged onward, Marlin whistled cheerfully. The world seemed to him just then an extravagantly bright and friendly place.

For two hours the little boat crept north across the sunlit waters, and must have traversed at least half of the lake's width, Marlin estimated, when an island swung up above the horizon ahead, a black spot that grew swiftly into a low, dark mass as they moved on toward it. Marlin eyed it with lively curiosity, and then turned toward his taciturn companion at the helm.

"What island's that?" he asked, jerking a thumb toward it.

The steersman peered ahead for a moment with keen eyes, and then turned back to Marlin.

"That'll be Logan Island," he told him. "Don't pass it very often."

"Wild-lookin' place," commented his passenger. "Anybody live there?"

The other pursed his lips and shook his head. "Not that I ever heard of. There's lots of little islands like that scattered around this end of the lake, with nobody on 'em."

They were swinging closer to the island by then, passing it at a distance of a quarter-mile. It was a long, low mass of land, a rough oblong in shape, and some three miles in length; its greater dimension. Thick forests appeared to cover it completely, extending to the water's edge, but broken here and there along the shore-line by expanses of sandy beach. Marlin could detect no sign or sound of human presence.

It was while he stared at the place, there in the brilliant morning sunlight, that there rushed upon them—the inexplicable.

A high, thin buzzing sound struck his ears, and at the same moment a flexible, swaying rod of gray-gleaming metal thrust itself up above the trees at the island's center, rearing swiftly into the air like an uncoiling snake. At its top was a round gray ball which appeared to be slowly revolving.

Marlin's jaw dropped in sheer surprise, and he heard a startled exclamation from his companion. The rod has ceased its upward climb, and abruptly, from the ball at its top, there flashed forth a narrow, dazzling ray of white light, brilliant even in the morning sunshine. It cut slantwise down across the waters and struck the little cruiser's stern.

The next few seconds remained in Marlin's memory always as a confused moment of blind, instinctive action. As the ray struck the boat, he saw the figure of his companion outlined for a second in living light, and then the whole rear end of the cruiser had vanished, steersman, deck and cabin being whiffed out of existence in a single instant. Immediately the deck beneath Marlin's feet tilted sharply, and he felt himself catapulted into the lake. The cold waters swirled around him, over him, as he sank beneath the surface. He struggled frantically for a moment, and then was shooting up again, his head popping up into the open air.

A few pieces of floating wreckage were all that remained of the cruiser. Hiding his head as much as possible behind one of these, he peered toward the

island. The ray had ceased, and he glimpsed the high, swaying rod sinking down again behind the tree-tops. In a moment the buzzing sound ceased also.

Marlin swallowed hard, and his pounding heart quieted a little. He listened tensely but could hear no further sound from the island. There was only the washing of the waters around him, and the continual whisper of the wind. Then, slowly and fearfully, he began to paddle toward the island, still clinging to his piece of wreckage, and hiding as much as possible behind it.

For a time that seemed hours to his dazed brain, he crept across the waters toward the island, heading for its northern end. The sun blazed down upon him with ever-increasing heat as he struggled on, and the mass of land ahead seemed remote and mirage-like. Twice he heard sounds from the island's center, sharp, rattling sounds, and each time he cowered down in sudden fear and then crept on again. When at last he pulled himself from the water, he stumbled across a narrow beach and into the forest, flinging himself into a thicket of underbrush and lying there in a stupor of exhaustion.

For minutes he lay thus, breathing in great sobs, and then was abruptly roused by the realization that something was tugging at his shoulder. He sat quickly up, and instantly felt himself gripped from behind, while a strong hand clamped across his mouth and smothered the instinctive exclamation which he had been on the point of uttering. A voice sounded in his ear, low and tense.

"Quiet!" it rasped.

For a space of seconds he lay motionless, held by his unseen companion. He heard the distant rattling sounds again, murmuring faintly through the forest from the south, suddenly ceasing. Then the grip around him relaxed, and he turned to face the one who had held him.

Crouched beside him was a hatless and coatless young man of twenty-five or twenty-six, his clothing stained and torn, his hair dishevelled. He gazed into Marlin's face with quick, bright eyes, and when he spoke it was in a whisper.

"You were one of the men in the boat," he said, gesturing toward the lake. "I saw—from the shore."

"What was it?" whispered Marlin. "My God, man, what's on this island? That ray——"

The other raised a hand in quick warning, and for a moment they were tensely silent. Again came that far rattling and clanging, hardly to be heard, dying away in a few seconds. Marlin's companion was speaking again.

"Have you any weapon?" he asked. "A pistol——" but Marlin shook his head. Abruptly the other agonized.

"No weapons!" he whispered hoarsely; "only our bare hands. And they——"

Marlin caught his arm. "For God's sake, what's going on here?" he asked. "Who are *they*?"

The other gripped himself, and then spoke in level tones. "I will explain," he said dully, passing his hands wearily over his eyes. "I need your help—God knows I need more help than yours!—but first——"

He gazed somberly into the forest for minutes before speaking again.

"Coburn's my name, Walter Coburn. I'm an entomologist—a bug-chaser—working out of the Fer-

son Museum, in New York. You've heard of it? Well, I've been there three years, ever since I got my degree. Not much salary to it, but the work is interesting enough. It was with that work partly in mind that I came to this island.

"You know, or you may not know, that some of these little islands have an extraordinary profusion of insect-life. I was on the track of an hitherto unclassified wood-tick, and had an idea that it might be found on some such island as this. So when Hanley suggested that we spend our vacation camping here, I jumped at the chance.

"Hanley was the closest friend I had. We were about the same age, and had got acquainted at the university, where we took many of the same courses. We shared a small apartment in New York, where he had been grubbing along teaching biology in a preparatory-school, and as we couldn't spend much on our vacation, he had conceived the idea of camping on one of these islands for a couple of months. He knew about them from having cruised over the lake with a friend, some years before, and as lots of the islets were uninhabited, they would make ideal camping-places. It would be a little lonely, but far better than a hot little apartment in New York, so he put it up to me and we decided to try it.

"IT was this particular island—Logan Island, they call it—which he had in mind. We came to Cleveland, bought some second-hand camping equipment and some supplies, and loaded the whole outfit into a leaky old tub of a motor-boat which we had rented for the next few months. Then we headed out to the island.

"We got here all right, and spent a day exploring the place. Back from the shore, at the island's center, we found a little green plateau, slightly raised above the rest of the island, which was quite bare and treeless and on the edge of which stood an old log-cabin. The cabin was in pretty good shape, except for a leaky roof, so we decided to stay in it, and spread our tent over the roof as an additional protection. It took us only a day to clean the place up and install our simple outfit, and then we were all fixed. That was just three weeks ago.

"In the days that followed, we thoroughly enjoyed ourselves, fishing, swimming or just loafing. Now and then I beat around the island in search of the elusive wood-tick, and every few days we went over to the mainland, so it wasn't as lonely as we'd expected. After three years of New York, the quietness of the place was soothing. And then, twelve days after our first coming to the island, the lightning struck.

"The thing was like a bolt from a clear sky. On that particular night Hanley and I were sitting up late, smoking and discussing the new green comet, which was getting nearer and was beginning to fill the newspapers with astronomical articles. Sprawled out in front of the cabin, and looking up into the star-scattered heavens, we were talking of the comet when Hanley suddenly stopped short in the middle of a sentence and jumped to his feet. He turned to me with a queer expression on his face. 'Do you hear it?' he asked.

"I listened, but could hear no unusual sounds, and then, in a moment, I got it too. It was a deep, powerful droning sound, something like the whirring of a great machine, and it seemed to come from directly

over our heads. Every moment it was getting louder, nearer.

"I turned to Hanley. 'A plane?' I suggested, but he shook his head, listening with frowning interest. I knew that he was right, for the sound was unlike that of any airplane-motor, but what it was I could not guess. Then I saw, almost directly above us, a little circle of blackness, a round black circle that hid the stars behind it, and that was *growing*.

"It was growing very swiftly, expanding out and obscuring star after star, and the droning sound was becoming terrific. Had it not been for that sound, I would have thought the thing a balloon or parachute coming down toward us, but it was clearly not that. Whatever it was, it was descending toward us with very great speed, and as it continued to do so, a vague, instinctive fear shot through me. I stepped back, hastily, toward the cabin. Then I heard an exclamation from Hanley, and turned around again, just in time to see the thing itself descending upon the plateau.

"It was a cone, a gigantic cone of smooth metal, which shot swiftly down and came to rest on its great base without a jar, its apex still pointing skyward. It must have been fifty feet in height, from base to apex, and its sides were smooth and unbroken by any opening. The great droning sound had suddenly ceased.

"Hanley took a quick step toward the thing, his face alight with interest. I shouted to him to come back, and ran toward him. Then the whole scene was cut short in a fraction of a second. There was a click from the side of the great cone, and a flash of intense white light leapt toward us. It struck me with stunning force, like a blow from a great club, and all went black before me.

"When I came back to consciousness, my head was still aching from that blow, and bright morning sunlight was falling on my face. My first glance around showed me that I was lying on the floor of the cabin, and Hanley lay beside me, still unconscious. And in a moment I discovered that we were both shackled to the cabin-wall, by means of short metal chains and metal anklets that were fitted around our right legs.

"From the plateau outside, there came to my ears sounds of prolonged activity, hammering and tapping and clanging, with now and then a loud hissing as of some escaping force. For the moment, though, I paid no attention to them, bending my energies toward reviving my friend. After a few crude restorative measures on my part, he opened his eyes, and with my help, sat up. His eyes widened as they took in the chains that bound us to the wall, and as the enigmatic sounds from outside came to his ears. He turned back to me and for a moment we crouched there and stared at each other, a little wildly, I think. Then, before we could speak, the cabin-door swung suddenly open, admitting a single figure.

"We turned our eyes toward that figure, and then gasped. For the thing that stood framed in the open doorway was so grotesque, so incredible, that for a moment I felt myself in the depths of some hideous nightmare. I heard Hanley whisper, 'God!'

"Imagine a man whose body, or trunk, is of smooth black metal instead of flesh, just a round, thick cylinder of glossy metal, whose two legs have been replaced by four spider-like metal limbs, and whose two arms have been supplanted by four twisting metal tentacles, like those of an octopus. This crea-

ture was like that, not much exceeding the average man's height, and instead of a head there was set on top of its cylindrical body, a small square box, or cube, which it could turn at will in any direction. Inset on each of this cube's four sides was a single circle of soft glowing white light.

"My first thought was that the thing was an intricate machine of some sort, but its quick, intelligent movements soon disproved that theory. A swift tentacle whipped up from it as it stood there, and closed the door behind it. It poised for a moment, seeming to contemplate us, and then came closer, gliding smoothly toward us on its spider-like limbs. It halted a few feet away; seemed to be examining us.

"I shrank back in utter fear, yet I could not take my eyes from the thing. It was, I saw then, entirely metallic. A vague notion that this was some living creature armored in metal was driven from my mind when I saw that there was no trace of flesh, or even clothing, about it. I noted, too, that one tentacle held a dagger-like object which I guessed to be a weapon of some sort.

"For only a moment the thing stood there, but in that moment I sensed that the strange glowing circles in the head were eyes of some sort, and that they were regarding us intently. Then, silent as ever, the thing glided back and out of the cabin, closing the door behind it. And again we faced each other in the silent little room.

"It was Hanley who broke the silence first. 'They've got us,' he said dully. 'That thing——'

"'But what was it?' I asked him desperately. 'Metal—and yet moving—like that.'

"'God knows,' he answered. 'It was alive, and intelligent, I think. A high order of intelligence, too. That cone—the ray that stunned us——' He seemed to be talking more to himself than to me. Suddenly he jumped to his feet and stepped over to the window, dragging the short chain with him. He gazed out of the dirty, cracked glass in the opening, and watching, I saw something of astonishment and fear fall upon his face.

"In a moment I was by his side, peering out also. Before me lay the sunlit, green plateau, a scene of incredible activity. The first thing which I glimpsed was a row of four metal cones, similar to the one we had already seen, which rested on their bases at the further edge of the clearing. Wide sections in their sides had swung aside, however, and in and out of the cones and across the plateau were swarming dozens of grotesque, metallic figures like the one which had already visited us in the cabin. All seemed the same, in appearance, and except for a few who appeared to direct and watch the efforts of the others, all were busy at some task or another.

"Some were removing masses of tools and small machines from the cones, while others were busy assembling and testing other mechanisms, in the open clearing. We glimpsed machines and tools, the purposes of which we could not guess. What struck me most was that all of these hundred or more figures in the clearing worked in utter silence. There was no speech of any sort between them, and except for an occasional clanging of tools, or a buzzing and hissing of machines, their work was quite noiseless. Yet each went about his particular task without the slightest confusion.

"For perhaps a half-hour we watched the things, whose activities never ceased, and only left the win-

dow when we saw three of their number approaching the cabin. We stepped away from the wall at once; and in a moment the door swung open and the three entered.

"They were of the same appearance as the one who had first visited us; indeed, he may have been of these three, for there was no distinguishing one from another. They came toward us, and I saw that one was holding a small, square tablet of smooth white material like stone, and a long metal pencil in a tentacle. The other two carried the dagger-like weapons which we had already seen.

"The one with the tablet came closer to us and held the tablet up to our view, then began to sketch swiftly upon it with the pencil. 'Evidently trying to communicate with us,' muttered Hanley, and I nodded. In a moment the sketching ceased, and the creature held up the tablet for us to see. On it he had drawn a number of circles, one very large circle being at the center, while around it and at various distances from it were placed other circles of differing size, but all much smaller than the central one. With the pencil, the sketcher pointed to the central circle and then up through the open door. We stared at him blankly, and he repeated the gesture. Suddenly Hanley understood.

"The sun!" he exclaimed. "He means the sun, Coburn. He's drawn a diagram of the solar system."

"To show our comprehension, Hanley pointed also to the central circle on the tablet, and then up toward the sun. Satisfied that we understood, the creature then pointed to one of the smaller circles, the third in distance from the central one, and then pointed to us. This time his meaning was clear enough. He was indicating earth on the diagram, and pointing to us as if to say that we were earth-men, and that this was earth. Again Hanley repeated his gesture, to show our understanding, and then the thing began to draw again on the tablet. In a moment he held it up for us to see.

"He had drawn a curious little design on the white surface, some distance away from the central sun-circle. It was a large circle, from which there streamed backward a number of long, straight lines. He held it for us to see, then pointed first to the new design and then to himself and his two companions. For a moment we did not understand, and then an exclamation broke from Hanley.

"The comet!" he cried. "He's drawn the comet—he means that they are from the comet!"

"Something of awe fell upon us as we looked at the creature. He pointed again to the comet-sign on the tablet, then toward the four cones on the plateau, and then to himself again. With that, the three turned from us and glided out of the cabin, again fastening the door behind them. The meaning of that last gesture had been clear enough to us. The things had come from the comet to earth, in those four great cones. But *why*?

"FOR hours we discussed the thing, while from outside came the clanking and hissing of the invaders' enigmatic machines. Why had they come to earth? It was plain that this was no invading party for however advanced their science, a hundred of them could not conquer and hold a world. Yet why, then, had they come? We knew that the comet was at that time racing around the sun, and that it would come close to the earth on

its way out of the solar system. Could it be that they were establishing a base on the island, so that when the comet came closer, the others on it could pour down on earth? It was possible. But why had they spared us, and kept us prisoned, instead of killing us? And above all, what *were* these comet-people? Living, intelligent, yet with bodies and limbs of metal?

"For all the rest of that day we lay in the cabin, discussing those questions in awed whispers, returning now and then to the window for further glimpses of the activities outside. We saw that escape was impossible, for the shackles and chains that bound us were strong and tightly fastened to the wall-logs, while every weapon and tool of any sort had been removed from the cabin before we regained consciousness. Even if we had been unfettered, there would have been no chance for escape, for all around the cabin there swarmed the metal figures, their activity never ceasing.

"The day waned, and when night came, the invaders set into action great flood-lights from the cones, which lit up the whole plateau like day. And beneath this light they went on working. I could not see a single one who stopped to rest. Always they labored, and beneath their swift tentacle-arms there grew up a great, half-formed machine of some sort, the foundation of which was already finished. Dully, I wondered what its purpose might be.

"A day passed—another—while we remained prisoned in the cabin. We had been left our own food, and water was brought to us, but we were not permitted to leave the cabin. Gradually we lost interest in the activities of the creatures outside, who went on with their building and testing and assembling almost unobserved by us. Then, on the afternoon of the second day, there came to us again one with a tablet and pencil, who gave us to understand, by various signs, that he wished to learn our written language. We agreed to teach him, and within an incredibly short time, he had mastered the reading and writing of English. We would point to an object and write down its name, and so on until his vocabulary was complete. His memory must have been almost perfect, for he could look at a word once and use it thereafter without hesitation. Within two days he could converse with us at ease, through the writing tablet. And it was then that we learned, from him, the purpose of their invasion.

"As we had guessed, they came from the great comet which was sweeping through the solar system. At the nucleus of that comet, we learned, there was a solid core formed eons ago by long accumulations of meteoric material. There was air and water upon that core, though little of either, and it was lighted by the intrinsic light of the surrounding coma, and heated more or less by electrical radiation also from the coma. The vast clouds of deadly gases in the comet's tail and head did not touch the solid core, and on that core life had sprung up. That was but natural, given a setting fit for the propagation of life. The theory of Arrhenius, according to which life-spores constantly traverse the universe and evolve into living creatures on whatever planet they strike, applies equally well to the comet's solid core. The life-spores had fallen there, also, and had grown through ages of evolutionary change into a race of intelligent, active creatures. They were not men,

not human in form, but their science was more than human.

"They devoted this superhuman scientific knowledge of theirs to the task of making life easier on their own comet-world. Every living thing must have food in order to live, and it was hard to produce food of any kind on the barren core of the comet. And this set their scientists to thinking. For a long time these comet-people had depended more and more on machines to do their work, and less and less on their own bodily strength. It is the same with the races of man today, who are beginning to forsake manual labor for machine labor. On the comet that process was very far advanced. Machines performed every needed action for its people and they rarely made use of their own strength. It is not hard to understand what finally happened.

"They began to say to themselves in effect—'It is our brain, our intelligence, that is the vital part of us, we would be rid of this handicap of the body forever.'

"With this idea in mind, their scientists worked together and finally produced a body of metal, a body-machine which was driven by atomic force, like all of their machines, and which needed only the slight, occasional care which is given to any machine. Inside that body had been arranged an electrical nerve-system, the controls of which led up into the square metal head. In that head, also, had been placed a small super-radio by which silent, constant communication could be had from metal body to metal body. Nerves, sense-organs, muscles, they were all there, and all were artificial, inorganic. The metal body lacked only a brain.

"It was then that one of their scientists performed his greatest achievement, and brought success to their plan. From the living body of one of their number he removed the living brain, as their consummate art in super-surgery enabled him to do. This living brain was then placed within a specially-prepared brain chamber of a metal body, inside its cubical head.

"Of course you know that the human brain is fed from the blood stream of the human body. To replace this, they placed the brain in a special solution, having all the properties of nourishing the brain cells. This solution is usually renewed once a week, so it is always fresh, and therefore the brain never really ages.

"Elaborate precautions are taken that no germs shall ever enter the brain chamber, as it was soon found that results were disastrous, wherever sufficient care had not been exercised.

"The brain chamber is formed of a platinum-like metal, which never oxidizes, and lasts practically forever, unless damaged by blows or other unusual accidents.

"When the brain is finally placed in its platinum chamber, the surgeon carefully connects the nerve ends of the brains with the electrical nerve connections of the metal body. Then an apparent miracle is accomplished. The body lives, can move, and can walk. The brain or intelligence of the one who had gone under the knife is now actuating the lifeless metal frame, directing it and controlling it. And that intelligence is now forever free from the demands of its former body of flesh, residing as it does now in the untiring metal body which requires neither food nor sleep.

"The experiment was thus a complete success, and at once it was duplicated on a big scale. Within a short time every living being on the comet-world had been treated likewise, so that his brain reposed in a similar body of metal. And so, for ages, the comet-people lived, undying brains cased in bodies of metal. When a body was worn out it was a simple matter to remove the brain from it and place it in a new body. Thus they had achieved immortality. Ages rolled on while their strange world drove across the heavens, and flashed from star to star.

"At last, though, there came a time when the world of the comet-people seemed threatened with downfall. Their metal bodies, like all of their machines, were actuated by atomic force, force produced through the accelerated disintegration of certain radio-active elements. As time went on, however, their supply of these elements became smaller and smaller. It became plain that within a short time, as they measured time, they were doomed to extinction, for without the force to run their machines and bodies, those bodies must become inert and useless, and the brain inside of each must die. It would take long, but it would be sure, and in the end they would all be gone. They must find new sources of such elements, or die.

"In this extremity, their astronomers came forward with an announcement of importance. They had charted the course which their comet-world was following, and had discovered that soon it would pass through a star-system with eight planets. On its way through this system, they stated, the comet would pass close to one of these planets, the one which is our earth. Their spectroscopic instruments assured them that this planet, earth, held great stores of the radio-active elements they needed, so they conceived the gigantic plan of stealing earth from the solar system, of drawing it into the comet and carrying it out into space with them. If they could do this, it would furnish them an endless supply of the materials they needed, and would also give them new lands inside the comet. So they set to work and formulated their great conspiracy. A conspiracy to steal a world!

WHEN the comet had entered the solar system, a hundred of the comet-people set out in four great cones, or space-ships, to establish themselves upon earth and carry out their plan. These cones were driven through space by light-pressure, the possibilities of which force they had long utilized. Even on earth, we know that this force exists and understand a few of its manifestations; though only a few. We know that it is the pressure of the sun's light that causes a comet's tail to swing always away from the sun. It drove their cones through space at will and they used the principle of it in their destroying white ray. In that ray, light-pressure could be used of such power as to disintegrate the molecules of any object, or it could be used merely to strike a powerful blow, as when Hanley and I had been stunned by it. It was by means of this force that the cones of the comet-people rose from their world and drove headlong out through the great coma, across the solar system to the earth.

"They knew that earth was inhabited, and it was their plan on reaching the planet to find some secluded spot where they could work without fear of interruption. For this reason they had approached

earth at night, finally landing upon the dark, silent island. Surprised there by the presence of Hanley and myself, they had instantly stunned us with the light-ray, but had refrained from killing us for their own reasons. They wished to learn as much as possible about our world, and for that reason had spared us and had taken the trouble to get into communication with us.

"It was thus that we learned the method which they intended to use in pulling our planet into the passing comet. You know that the earth, whirling around the sun, is exactly like a hand swinging a ball around and around at the end of a long cord. The sun is the hand, the earth is the ball, and the power of the sun's gravitation is the cord. If it were not for the earth's motion, its centrifugal force, it would fall into the sun, pulled there by the latter's gravitational power. And similarly, if it were not for the pull of the sun's gravity, the earth's centrifugal force would cause it to fly off into space at a tangent, just as the swinging ball would fly off if someone suddenly cut the cord.

"It was just that that the comet-people meant to do. They meant to cut the cord. They were setting up an apparatus that would neutralize the sun's gravitational power on the earth. They had learned that the emanations of gravitational force from any body have a measurable wave-length, and that this wave-length is different in the case of each different body. The vibrations of gravitational force from the sun are thus different in wave-length from those of earth, and it is the same always; the wave-length of no two emanations are the same. Thus the invaders could neutralize the sun's gravitational power on earth without affecting the power of the earth itself, or of any other body. They would set up a wave-plant, or vibration machine, which would send out vibrations equal in wave-length to the sun's gravitational emanations; these would meet and oppose and neutralize the gravitational force of the sun. In that way, the sun would no longer pull earth, and the earth, therefore, would fly off into space at a tangent.

"It was the plan of the invaders to do this at a time when the comet was nearing the earth, so that when the planet did fly off from its orbit, it would do so just as the comet was passing, and would thus be brought inside the gravitational grip of the great comet itself. That done, the rest would be easy. The grip of the comet would pull the earth down through the coma to the nucleus, where it would be received so as to cause it to revolve about the nucleus. Of course the earth's moon would accompany its mother-planet when it left its orbit, and would be carried into the comet likewise. All life on earth would be annihilated when it passed through the coma by the dense and deadly gases there, and thus earth and moon would be at the disposal of the comet-people. And thus the earth would be carried out of the solar system inside the great comet for all time, and its riches of minerals and materials would form a great supply-base for the comet-people, and another world for their inhabitation.

"This much Hanley and I learned in our written conversations with the leader of the invaders, for it was the leader, we learned, who was communicating with us. And we were dazed with horror. Soon the invaders would have finished that great machine by which they meant to cut off the sun's pull, and when the comet drew near earth, the planet would go hurt-

ling out toward its doom. We alone knew the peril that hung over earth, and we could do nothing, fettered and prisoned as we were. Nor was there chance of outside help, for the invaders kept a close watch on the waters around the island, and twice used the light-ray to annihilate small boats that came too near. There was no chance for escape or for help from outside, and we must remain helpless witnesses of the world's doom.

"It was then that the leader revealed to us the purpose for which we had been saved, and made to us an amazing proposal, which filled me with horror. He proposed that we cast in our lot with the comet-people, that we become of their number and help them in their plans. He had learned that we were both scientists, and knew that after the earth had been drawn into the comet, we would be of invaluable aid to them in helping them in the exploitation of its resources. So he informed us that if we would do so, if we would agree to help them, he would confer immortality on us by removing our brains from our own bodies and placing them in metal bodies like their own. If we refused—death.

"The thought filled me with loathing—the idea of our living brains enduring through centuries in metal bodies. We had been given a few days in which to decide, and as I knew that I would never accept, I saw death ahead. But to my horror and dismay, Hanley began to lean toward the idea. As a biologist, I think, he had long been interested in the idea of achieving immortality, of preserving the intelligence beyond the death of the body, and now that he saw the thing within his grasp, he was disposed to accept it. I argued with him for hours, trying to make him feel the utter horror of the whole business, invoking every argument I could think of to shake him, but all to no purpose, for he was sullen and unyielding to all my words. He pointed out that we would die in any case, and that the peoples of earth were doomed, so that our refusal would in no way help us or anyone else. So to all of my entreaties he turned a deaf ear, and when the time came, he informed the leader of the invaders that he was willing to accept their proposition and become one of them.

"That afternoon they did the thing. God, what a sight that was! Through the window I watched them. They set up a folding metal table on the plateau nearby, and stretched Hanley upon it, then they applied their anaesthetics. Nearby lay the metal body which they had prepared for him. It was the same as their own, except for one feature. Instead of having four tentacle-arms and four legs, it had but two of each. That puzzled me for a time, but it occurred to me that the reason for this difference was that there were no nerve-ends in Hanley's brain with which to control an extra pair of arms and legs. Therefore, his metal body had been provided with but two of each.

"I saw their instruments, then, flashing in the sunlight, and when the moment came, they lifted Hanley's living brain from his skull and placed it in that metal frame, inside the cubical head. A flash of the light-ray, and his own dead body vanished, while the invaders clustered around the metal body, twisting, turning, connecting. At last they stepped back, and a sick horror came over me as I saw that metal body standing erect, moving, walking, obeying the commands of Hanley's brain, inside it.

"From that time on, Hanley was one of the comet-people. Like them, he worked unceasingly on the great machine, directed by the leader, no doubt, and like them, he never seemed to rest, his brain ever driving that tireless metal body. He paid no attention whatever to me, never came near the cabin. He may have been ordered to stay away from it, of course. But I could always distinguish him from the other metal figures, even at a distance, because of the difference in the number of his limbs.

"I had expected death when they finished with Hanley, but I soon learned that a fate far worse lay ahead. The leader visited me once more, and told me, out of sheer cruelty, I think, that when their work on earth was finished, they would take me back with them. Living creatures were very rare on their own world, except for themselves, and I would be a valuable subject for experimentation. Even that news hardly altered the dull despair that filled me.

"The days dragged by slowly, and the great machine outside neared completion. It looked much like a battery of great turbines, a long row of dark, squat cylindrical mechanisms which were joined to each other by an intricate web of connections. Over all of them had been placed a great cover of shining metal, protecting the mechanisms beneath from rain and dew, and inset on the front of this cover was the switchboard which controlled the great machine. It was a square tablet of black metal, covered by a mass of intricate adjustments and controls, switches, knobs and levers. At the center was a single shining lever much larger than the others, which swung around a graduated dial.

"At the very edge of the plateau, not far from the cabin, the invaders had erected another mechanism, which puzzled me for a time. It was a large upright screen of ground-glass, or a similar material, behind which was attached some smaller mechanisms, which I only glimpsed. This screen was, in fact, a great chart, a chart of the heavens, on which was represented the comet and the earth. The comet was a great disk of green light, and around this central disk was a thin green circle, which represented the limits of the comet's gravitational grip. Any object inside that thin green line was inside the comet's grasp, and would inevitably be drawn down into the coma, while so long as it lay outside of that line, it was in the power of the sun's gravity. In other words, that line was the "neutral" between the two zones of gravitational force.

"The earth was represented on the chart by a small disk of white light. Both the tiny white disk and the great green one moved on the screen in exact proportions to the movements of the earth and comet in the heavens. How this was accomplished I could not conjecture, but supposed that the mechanism behind the screen caught a moving picture of the actual movements of comet and earth, by means of light-rays or electrical radiations, and reproduced it in miniature on the screen. The purpose of the chart was clear enough. It would enable them to time their operations with accuracy, so that the earth would leave its orbit at the exact moment when its outward flight would bring it inside of that thin green line, and within the comet's gravitational power. Tensely I watched that chart, and each day I saw the comet and the earth drawing nearer, nearer, as the green wanderer sped out of the solar system.

"BY then the work of the invaders was slackening, for the great machine appeared to be finished. At last came the time, just four nights ago, when they finally put it into operation. I saw them gathered around the switchboard, Hanley among them. The leader stood ready, a tentacle grasping the large central lever. Others were watching the great chart, calculating the positions of earth and comet. I knew that the whole operation must be timed to an incredible nicety, if it were to succeed at all, and I waited, as anxiously as they. At last, there was a sudden stir among those at the chart, and I divined that the signal had been given, speeding silently and swiftly from brain to brain. And I was right, for at the same moment the leader, at the switchboard, swung the big lever around the dial, slowly and carefully. He had reason to be careful. The difference in wave-length of the different gravitational emanations must be extremely minute, and if he were to accidentally neutralize the earth's gravity instead of the sun's, if only for an instant, there is no telling what tremendous cataclysm might not occur. But that did not happen, for when he had swung the lever to a certain position on the dial, there rose from the great machine a low humming, a sound so deep as to be scarcely audible. Instantly the leader stepped back.

"The machine had been started. I knew that at that moment it was sending forth its own powerful vibrations to meet and oppose and neutralize those of the sun's gravitational force. The cord had been cut!

"For a time, though, nothing seemed changed. Like the metal figures on the plateau, I watched the great chart for all the rest of that night, but it was only toward morning that any change became apparent. Even that change was so small that it could hardly be noted. It was only that the little white earth-circle on the chart was moving a little faster, was leaping toward the green comet a little more quickly.

"And as the hours went by, it moved faster and faster, until by that night I could see plainly that the earth was already a little out of its orbit, veering out a little bit toward the nearing comet. Gathered around the chart and the great vibration-mechanism, the invaders watched the result of their work. And fettered there in the little cabin I, too, watched and waited.

"But that night, when I had all but reached the blackest depths of despair, I stumbled on something that gave me a ray of hope. Much of the time I spent in the cabin I occupied myself in searching endlessly for some sort of tool or weapon, but always without avail, for as I have said, every object that would serve for either had been taken away. But at last, that night, I came across a tiny point of metal that projected a bit from the dirt floor of the cabin, in one of the dark corners. In a moment I was digging away at the thing, and inside a minute had unearthed a long, rusty file, which had been buried beneath the floor, with only the tip projecting through the dirt. It was so badly rusted that it appeared almost useless, but the very possession of the thing gave me new life, and after cleaning it as well as I could, I set to work on the shackle around my leg, muffling the grate of the file by wrapping it with cloths when I worked.

"Through all that night I sawed away at the

shackle, and when morning came I was disheartened by the little I had accomplished. The rusty file had made only a shallow notch in the hard metal of the shackle. Yet, I knew that it was my only chance, and kept steadily at it, now and then glancing out of the window to make sure that I was unobserved.

"Weariness overcame me, and I slept for several hours, waking shortly after noon. That was yesterday. And when I glanced out of the window at the great chart, I saw that earth had leaped half the gap between itself and the comet, and was approaching perilously near to the thin green line that marked the limits of the comet's grip. I knew that once it passed inside that line it was the end, for no power in the universe could then release it from the comet. The machine must be smashed or turned off before that happened. Frantically I worked at the shackle, through all of that long, hot afternoon.

"Night came, and the comet flared overhead in awful splendor, waxing tremendously in size and brilliance, its green light falling through my window and clashing with the white brilliance of the flood-lights on the plateau. Out on that plateau, the invaders were still gathered in motionless groups, still watching the tiny earth-circle on the chart, which hurtled toward the comet now with terrifying speed. From its rate of progress I estimated that it would have passed inside the comet's grip by the next night, and knew that after it had done so, the invaders would enter their cones and leave for their own world at the comet's center, while earth passed to its doom in the deadly coma. I must escape that night, if ever.

"At last, shortly before midnight, I had sawn the shackle half through, and with a muffled blow, managed to break it. I crept to the window, then, and cautiously looked out.

"Under the dazzling lights, the metal figures outside were gathered together in two masses, around the chart and the machine, sprawled on the ground. None of them seemed to be watching the cabin at the moment, but the little building had but two windows, and both of them faced toward the plateau. The forest lay but a few yards behind the cabin, and once inside it I would be comparatively safe, but to get there I must creep from the building in full view of the invaders on the plateau, and beneath the dazzling glare of their flood-lights.

"There was no other course for me to follow, though, so without hesitating further, I gently pried the window open and as quietly as possible slid through it, dropping at once to the ground and lying still for a tense moment. There were no sudden sounds or movements from the metal figures around the two mechanisms, so as stealthily as possible I began to crawl around the base of the cabin, and in a few moments had reached the welcome shadows behind it. I then rose to my feet, and took a swift step toward the forest, a few yards away. And I stopped short. Fifty feet to the right of me a single metal figure had suddenly stepped into view, confronting me, a light-ray tube held in its tentacle and pointing toward me. And it was Hanley!

"Hanley, or that which had once been Hanley's brain and soul, cased in that body of metal. I recognized him at once, by reason of his two tentacles and limbs, and the bitterness of death came over me, for I had failed. Instinctively, though, even at that moment, I staggered toward the trees ahead, waiting for

the death from behind. In a moment would come the flashing ray, and death.

"But it did not come! With a sudden thrill of hope I began to run, and within a few seconds had passed into the dense darkness of the forest. I had escaped, though for the moment I could hardly credit my escape. I glanced back toward the plateau, and saw the figure of Hanley still standing there, silent, unmoving, the deadly ray-tube still held in his grasp. He had let me go!

"**B**EFORE I could understand what had happened, there came a sudden flurry of movement across the plateau, a little stir of excitement there, and over my shoulder, I saw a dozen or so dark shapes gliding smoothly across the clearing on my track. They had discovered my escape, and were after me.

"Frantic as some hunted creature of the wild, I raced on through the forest, stumbling on projecting roots, hurling myself through patches of briars with mad haste. And swift on my trail came that inexorable pursuit, drawing nearer and nearer toward me, turn and twist as I might. I was rapidly getting out of breath and knew that I could not long compete in speed or endurance with the tireless metal bodies behind me. At last I saw the ripple of water ahead, and a plan, a last expedient, flashed into my mind.

"I stumbled on until I had reached the water's edge, where the thick forest extended right down to the island's shore. Swiftly I searched the ground around me, and in a moment had found what I sought—a large, thick section of deadwood. Grasping this, I threw myself behind a clump of bushes a few yards away, and waited for my pursuers.

"In a few seconds they came, crashing through the underbrush on my track. I waited a moment longer, until they had almost reached me, then hurled my section of wood out into the water, and at once flattened myself again behind my screen of bushes.

"The piece of wood splashed into the water at the exact moment when my pursuers, some five or six in number, reached the water's edge, not ten feet away from me. At the sound of the splash, the brilliant light-ray instantly flashed forth from their weapons, churning the waters of the lake with its disintegrating force. For perhaps a minute this continued, and then they snapped off the ray and waited. There was silence, except for the washing of the troubled waters of the lake.

"I crouched lower behind my flimsy shelter, holding my breath, but after a long moment the metal figures turned away, and I heard them retracing their way through the forest. My trick had worked.

"For half an hour I lay there, a little dazed by the swift action I had just passed through. Then I rose and began to make my way stealthily along the shore. It was my thought to get to our little motorboat, which we had kept in a tiny cove, and to make for the mainland in it. If I could do that, I might be able to obtain help and return to the island, make an effort to destroy these invaders and smash their machine. But when I got to the cove I found only a few fragments of the boat. It had been destroyed by the invaders!

"To me, that seemed the end—the end, to all our earth. There was no chance left to give warning now, for I knew that by the next night earth would have passed inside the comet's grip forever, and it

would all be over. Through the rest of the night, our last night, I wandered over the island, a little mad, I think, and when this morning finally came it found me at the island's northern end. I lay there, trying to plan out some last course of action, when the chugging of a boat roused me. I hurried to the shore, just in time to see your boat destroyed by the light-ray from the plateau, and your companion killed. I saw that you had escaped—though the watchers did not—and waited until you got to shore. And that is all.

"And that is all. Over there on the plateau stands the great machine which is sending earth hurtling into the comet, while the invaders there watch and wait. A little longer, a little nearer, and earth will have passed inside the comet's grip, and then it will be hours only until the end. The comet overhead growing larger and larger, nearer and nearer, and then the deadly gases of the coma, bringing swift death to all on earth. And at the last, the comet racing out of the solar system with the earth inside it, flashing out into space, never to return, plunging across the universe for all time with its stolen, captive world!"

THE hoarse whisper of Coburn's voice ceased, and for minutes the two men sat in silence. The whole island seemed unutterably silent, at that moment, except for the wind gently rustling the leaves around them, and the drowsy hum of insects. Through the foliage above, the sunlight slanted down in bars of bright gold.

Marlin was the first to speak.

"The earth!" he whispered chokingly; "the whole earth! What can we do—we two—"

Coburn was staring into the forest, scarcely listening. When he spoke, his voice was deadened, toneless.

"Nothing, now," he said. "We must wait—until tonight—". A little flame of hope leaped into his eyes, and he turned quickly to Marlin.

"Tonight there is a chance," he whispered. "A chance in ten million, but—a chance. If we could get to that machine—"

"Smash it?" asked Marlin. "Turn it off?"

Coburn nodded slowly. "We'll try," he said. "Tonight, when it's darker. If I had a single moment at that switchboard—"

He broke off suddenly as once more there came through the forest the clanging rattle of metal against metal. His eyes held Marlin's.

"Getting ready," he whispered. "Getting ready to leave, tonight. They'll wait till earth has passed that neutral line, until it's in the comet's grip, and then they'll destroy the machine and leave in the cones."

Crouched there, they listened, silent, white-faced, tense. . . .

Always afterward the remaining hours of that day were to Marlin a vague, half-remembered time. Hot, and hungry, and very thirsty, he lay beside Coburn, speaking little and that in whispers, listening fearfully to the sounds that drifted to their ears from the south. As the day waned, the events through which he had just passed, the things which he had just been told, became blurred and confused in his brain. Once or twice he caught himself wondering why he lay thus in hiding, and brought himself back to reality only with a sharp effort.

A few hours more, and the sunset flamed low in

the west, painting the sky there with a riot of brilliant colors. Marlin strove to remember a sunset which he had once seen, with a great blue lake and a neat white village in the foreground. How long ago had that been? Days, months, years?

While he struggled with that thought, the gold and orange and crimson were fading from the sky above, and they awaited only the darkening of the long June twilight. Its gray deepened to a darker gray, and then to black. Then, up from the eastern horizon, there soared colossal bars and banners of viridescent light, sweeping across the heavens like an aurora of blinding green. Prepared as he had been for the sight, Marlin gasped when the comet wheeled into the heavens, a single vast ocean of green fire, that crept smoothly westward across the firmament, and that dripped down a ghastly, throbbing radiance upon the world. It was as if the whole sky were boiling with emerald flame.

Coburn stood up, his burning eyes fixed upon the comet, his face death-like beneath its green unearthly light. He turned to Marlin, who had risen beside him.

"I am going ahead to reconnoiter first," he explained swiftly, "and I want you to stay here while I'm gone. We have a few hours at least, I think, and before we can plan any course of action I must know what is happening on the plateau."

"You won't be long?" whispered Marlin, and the other shook his head. "Not more than a half-hour. But don't leave this spot until I come back."

Marlin whispered his assent, sinking to the ground again, while Coburn glanced quickly around, then moved stealthily into the forest, toward the south. In a moment he had been swallowed up by the shadows.

Left alone, Marlin resumed his prone position on the ground, not venturing any movement. Except for the steady chirping of crickets, and the deep croaking of distant frogs, the forest around him was very silent. He turned, after a moment, and gazed up into the flaming heavens, until his eyes were dazzled by the splendor of the waxing comet. There came to him, dimly, some realization of what that flaming thing above must be doing to the world of men, of the pit of fear into which it must have precipitated all earth. The thought steadied him a little, and his jaw tightened.

Abruptly Marlin realized that Coburn had been gone for a longer time than he had mentioned, and swift anxiety and fear chilled him. Where was Coburn? Had he been captured? Killed? He tried to reassure himself, to force down his misgivings, but with the passing of every minute his fear deepened. When an hour had passed he rose at last to his feet, looking anxiously around. He hesitated for a moment, then uttered a low call.

"Coburn!"

No answer came back to him, except a rustling echo of his own voice. A ray of green light from the wheeling comet above struck down through the canopy of leaves and fell upon his white, anxious face.

"Coburn!"

Again he had called, and louder, but again his cry went unanswered. Marlin could endure the suspense no longer, and suddenly crept from his hiding place and began to make his way southward through the forest, as silently as possible.

Slowly he moved forward through the dark forest, a forest pillared here and there by shafts of green radiance from the comet overhead. He stumbled across green-lit clearings, and over tiny, gurgling brooks, and through dense thickets of brush and briars. Twice he crossed steep little ridges, and once he blundered across a soggy patch of swamp, where his feet sank deeply into the treacherous ground, and where snakes rustled away from him through the grass on either side. Still he stumbled on, breath almost gone, heart near to bursting. It seemed to him now that he must be very near to the plateau at the island's center.

But as he emerged from a dense little tangle of brush, and took in the sight ahead of him, something like a sob came from him, and he slumped to the ground in sheer exhaustion. He was standing at the edge of a narrow, sandy beach, and beyond it there stretched away the rippling, green-lit lake. Instead of heading toward the island's center, he had lost his way, and had lost more than an hour blundering across the island in the wrong direction. He dropped to the ground, half-dazed by his efforts, striving to get his bearings.

He thought of calling to Coburn again, but dared not do so, for he could not know how close he might be to the plateau. Nor could he know where the plateau lay, there on the strange dark island. If he were to return to where Coburn had left him, then he might be able—

Clang!

It rang across the island, loud and clear, a single short, metallic note. Marlin started to his feet. He stood motionless, listening intently. In a moment came another sound, a deep, powerful droning, that waxed in intensity for a moment, then continued without change. At once Marlin moved off again into the forest, heading unhesitatingly to the left. The sound, which could come only from the plateau, had given him his bearings.

Hastily he pushed on, his weariness forgotten for the moment, his throat tight with excitement. Far ahead he made out a thin white light that filtered feebly through the forest, a pale light very different from the green radiance of the comet overhead. And as Marlin pressed on toward it, the droning sound came to his ears louder and louder, nearer and nearer. He slackened his pace a little, moving more stealthily.

CLANG!

Again it came, that single ringing note, sounding louder in his ears than the first, as he drew nearer to the plateau. And again, following it, there rose the deep droning sound, combining with the first to fill the air with a terrific humming, as of ten thousand dynamos.

The white light ahead grew stronger and stronger, until at last there rose before Marlin a steep little slope, at the top of which the forest ended, and from beyond which came the white radiance. He flattened himself on the ground, crawled stealthily up the slope, and paused at its edge, behind a slight thicket of bushes. Cautiously he parted the bushes and peered forward.

Before him lay the plateau, a broad, grassy surface perhaps a quarter-mile across. Some fifty feet above its center there hung in the air two great shapes from which came the droning sound, two gigantic cones of metal. Attached to these were flood-lights that

drenched all on the plateau with their white light, which even there was pale in comparison with the throbbing radiance from the comet overhead.

At the center of the plateau two similar cones rested on the ground, in the side of each of which was an oval opening. Even as Marlin first glimpsed these, the opening in one of them closed, with the loud clanging note he had twice heard, and then, with a powerful droning roar, the cone rose smoothly into the air to hang beside the two others there.

On the plateau was left the single great cone. Beside it there stood a long, low structure, shining brilliantly beneath the double illumination from cones and comet, and bearing on its face a black tablet covered with knobs and levers, with a single large lever and dial at its center. It was the neutralizing-machine, Marlin knew, the machine that was cutting off the sun's pull, that was sending the earth hurtling out toward its doom in the comet. Around this machine were grouped a score of grotesque, metallic figures, figures strangely spider-like with their multiple tentacles and limbs, and with square, unhuman heads of metal on which were set the glowing circles that were their eyes. A deep, shuddering loathing shook Marlin as he saw them for the first time.

He turned his gaze to the right and saw, at the edge of the plateau there, the low, rough cabin, and beyond it the great chart which Coburn had described to him, a large ground-glass screen on which moved the small white disk that was earth and the great green disk that was the comet, the latter encircled by the thin green line that marked the limits of its gravitational grip. And as Marlin's eyes fell upon it, his heart leaped uncontrollably. For the earth-disk on the chart was only a few inches from the thin green line around the comet, the neutral between its gravitation and the sun's. And swiftly that tiny gap was closing.

For the first time the significance of the hovering cones above struck Marlin. The invaders were leaving, their work accomplished. In a few moments earth would have passed forever inside the comet's grasp, and they could destroy the great machine with a flash of the light-ray, and speed off in their cones, leaving earth to its doom. It was the end.

Marlin's brain was whirling, his hands trembling, but he hesitated for only a second, then crawled slowly forward from behind his flimsy shelter. Out over the plateau, beneath the glaring light from above, he crawled on toward the machine, half-hidden by the tall grasses that covered the plateau. For ten yards he crept forward, then stopped, and ventured to raise his head a little and look ahead.

The last of the metal figures on the plateau were trooping into the remaining cone, through the opening in its side. There remained only four or five who were standing beside the great machine, beside the switchboard. And in the moment that Marlin saw these, they discovered him. He saw them turning and evidently gazing straight toward him. A moment Marlin crouched there, petrified, and then he rose to his feet with a mad shout and raced straight across the plateau toward the switchboard of the great machine.

Even as he rose to his feet two of the little group at the machine flashed toward him, with incredible speed, and before he had covered a dozen paces they were upon him. He felt himself gripped by cold, coiling tentacles, grasped and thrown to the ground.

For a moment he struggled frantically, then heard a hoarse cry, and wrenched his head up to see a dark shape speeding across the plateau from the opposite edge. It was Coburn!

Twisting in the remorseless grip of the two with whom he battled, he had a flashing glimpse of Coburn racing toward the machine, and then he uttered a cry of agony. From one of the hovering cones above, a shaft of the light-ray had flashed down and it struck Coburn squarely. A moment he was visible, aureoled in a halo of blinding light, and then he had vanished. Marlin closed his eyes, ceased his struggles. He felt himself jerked to his feet by his two captors.

He opened his eyes, then, and stared dazedly over toward the great chart. The earth-disk there was less than an inch from the green neutral-line. It was all over. He and Coburn had shot their feeble bolt and failed. He felt himself being jerked forward toward the last cone, sagging between his captors in dull despair.

BUT what was that sudden crash of metal at the machine, that rush of movement there? Marlin's head snapped up with sudden hope. A single metal figure had sprung out of the group beside the machine, a figure oddly manlike, with but two tentacles and two limbs, that leaped toward the switchboard of the great machine.

"Hanley!"

He screamed aloud, and at the same moment was released, thrown to the ground, by his two guards, who also raced toward the switchboard. From the cone on the ground there poured forth a stream of metal figures, and the droning giants above dropped swiftly down toward the machine. Hanley was beside the switchboard, had reached up with a swift tentacle and grasped the great lever at its center. From cones above and metal figures below, a dozen shafts of the brilliant light-ray flashed toward him. But in the fraction of a second before they reached him, he had wrenched the great lever far around the dial, and the next moment a titanic explosion rocked the island to its foundation. Marlin was knocked backward by a terrific gust of force, and had but a single flashing glimpse of all at the center of the plateau, machine and metal figures and hovering cones, shooting skyward at lightning speed.

He staggered to his feet, dazed, half-blind, reeled drunkenly forward and then stopped short. For at the center of the plateau there yawned a terrific gulf, a vast pit torn from the earth in a single instant. Cones and machine and invaders had vanished utterly in that tremendous cataclysm, blown off into space when Hanley had swung the lever, and had neutralized earth's gravity, for that single moment and at that single spot, instead of the gravity of the sun.

Marlin staggered along the edge of that mighty abyss, toward the great chart-screen at the plateau's edge. It had been twisted and bent by that tremendous detonation, but it still functioned, and on it

there moved still the two disks, the earth and comet symbols. Marlin stumbled closer, his whole soul fixed upon the screen. The tiny earth-disk there was still creeping forward toward the green neutral-line around the comet, moving slower and slower, but still moving. Slower, slower, it moved. Now it was but a half-inch from the line, a quarter, an eighth. By then it was hardly moving. It had touched the line, now, hovered at its edge. Hovered as the earth was hovering, at that moment, on the neutral between sun and comet, hesitating, tottering— And then Marlin cried aloud.

For the white disk was moving back!

Slowly at first, and then faster and faster, the earth-disk was falling back from that thin line, swinging back into its usual orbit, pulled back again by the sun's far-reaching power, pulled back from the very edge of doom.

Marlin raised his tear-stained face toward the great comet above, a single vast sea of green flame, immense, titanic. It was passing, now, passing out of the solar system for all time, its one chance of stealing our earth gone forever. He shook his fist toward it in mad defiance.

"You lost!" he screamed, in insane rage and triumph. "Damn you, you lost!"

IT was twilight of the next day when Marlin left the island, paddling slowly out from it on the crude little log-raft which he had fashioned. Shadows of dusk were falling upon the world, deepening into darkness. In the west there trembled forth a star. Still he crept on.

Night, and up from the east there rose again the comet. Marlin lapsed in his progress at that, gazing toward it. Small and shrunken and harmless, it seemed now, its evil glory fast waning as it thundered out into space on its appointed course. He wondered, momentarily, what frenzies of thanksgiving were shaking the peoples of earth to see it thus receding, to see themselves thus snatched back from the very gates of death.

He turned, for a moment, looking back toward the island. It seemed dark and small, now, a low, black mass of land that stood out indistinctly against the pale-lit waters. Only a tiny speck of land, there in the great lake, and yet on it had been decided the fate of a planet. On it the comet-people had played their great game, with a world as the stake, and on it they had lost, their vast conspiracy smashed, in the end, by Hanley. Hanley, whose human brain, human intelligence, human soul, had lived on in a body of metal, to shatter the invaders' colossal plan at the last, remorseful moment.

Marlin paddled on, a dull ache filling his heart. Coburn, Hanley—they had died for the world, for him, while he still lived on. Yet even now, he could give them something, however little, in return. The homage and the gratitude of a world, when that world learned who had saved it. He could give them that, at least. . . .

THE END

THE MAN ON THE BENCH

By W. J. Campbell



... Almost instantly, a startling change could be noticed coming over the helpless animal. The clean, silky hair seemed to stiffen and become dirty and rough looking; the kind, intelligent eyes became glaring and steely, rolling in their sockets. With bared fangs the beast snapped at the doctor's hand as he extended it toward the table.

LR. SEXTON was speaking. "It is a fact, gentlemen, regardless of what you have said or thought. I have brought you together today to demonstrate and prove what I have previously told you is true.

It may seem to you that I am the victim of some strange hallucination, that my mind is over-balanced from too close application to my work, that I am acting under a delusion, or in other words, that I am crazy; but gentlemen, if these are your thoughts, you do me a wrong. Do not judge until you have seen. After that, I am perfectly willing to abide by your verdict."

The small group of scientists assembled in the doctor's laboratory looked at each other, doubt written in their faces. There was an interval of silence. Then Dr. Baker, one of the most prominent members present, said, "Dr. Sexton, I would like to ask, could it not be that you are honestly mistaken? Couldn't it be but a dream, —that perhaps you have imagined all this? Why, man, it seems to me that if there is an impossibility in the medical or scientific world, this is it."

Dr. Sexton smiled. "That is just what I thought some of you would say, but couched in gentler terms. Dr. Baker, I do not believe I am crazy, but a crazy person never believes that of himself, and this is no argument, I'll admit. What I am going to show you, however, will be proof that I am a person of

sound mind. Remember, all I ask is, that you go with me to my laboratory, keep your minds open and if you are not convinced that I have discovered something that will astonish the scientific world, you may pronounce me crazy and remove me to an asylum *post haste*. I shall abide by your verdict. Come, we shall repair to the laboratory at once."

Slowly they followed the doctor down a long hall and came to a heavy oaken door. He unlocked and threw it open, stepping inside. The others followed but saw nothing unusual in the well equipped room. Chairs were placed across one end and in front of them a small upholstered table.

Dr. Sexton invited the scientists to be seated and then walked across the room to a small wall-safe from which he took two small bottles and a hypo-

IT is well known that under a thin veneer we are still beasts, and probably will remain so for ages to come. If you do not believe this statement, take two ordinary human beings, and let them go without food for three days, and then hand ONE of them a loaf of bread or other food, and see what happens. There will be a royal battle to the death, as has often been actually proved. Is it possible to inoculate ourselves against our ancient animal instincts? That is a question which undoubtedly our author has asked himself. This is a most absorbing story, containing excellent science.

dermic syringe. He retraced his steps to the table and faced the small but wondering audience.

Holding up the phials so they could see them, he said, "Gentlemen, these little bottles contain my secret, a formula never before dreamed of by man. These few drops of colorless liquid, that you see, are the result of almost a lifetime of study and research. It is all there is in the world at the present time but more can be produced now quite readily. I am the only person living who knows the formula and that secret is securely locked in my brain. It has not been committed to paper; perhaps may never be. I may also state that in my opinion, no chemist could ever successfully analyze it.

"It is not a something that can be placed in the hands of promiscuous persons, but if handled at all must be handled only by responsible parties. Even then I will admit it could be wrongly used, especially the one marked *Degen*. I have almost decided that it would not be safe in the hands of anybody, but that question I leave to you. It can be decided later. Ponder well.

"Gentlemen, it has always been maintained, I believe, that in the worst of us there is some good, that in the worst character there is some redeeming feature that could be brought out and developed to overshadow all his bad characteristics and a new, a better individual would spring from the old, the vile, the wicked. In this I would include the lazy, the liar, the thief, and the murderer. And why not? Science has banished or reduced to a minimum a number of diseases of physical man, why cannot some of his moral attributes be changed? These, as the others, may be due to heredity, accident or association. We now have the "Truth Drug" under whose influence criminals can't lie. All these have been accomplished by what? By serum administered hypodermically.

"Finally, I may state that no person of his own free will, thus afflicted, ever overcomes these conditions. There must be an outside influence. Very few of them get the opportunity to meet such influence. Why not therefore meet these conditions in the same way that the physician has met, battled and conquered many human ailments?

"It is along this line that I have worked and I have at last succeeded in producing what I have chosen to call *Degen* and *Elimino*. *Degen* will bring out or magnify the predominating bad characteristics and *Elimino* will remove them in a few minutes' time.

"I HOPE I have made it plain to you. We will now proceed with the demonstration." With that the doctor pressed an electric button at the head of the table. Almost instantly a door at the end of the room was opened, and a man entered, followed by a beautiful collie dog, who trotted along quietly at his heels. Crossing the room, the dog leaped upon the table and turning, licked the doctor's hand. A moment more and the animal had been strapped to the table by the doctor and his assistant.

Stepping aside, that all might see, Dr. Sexton said, "This is my dog, one of the kindest, cleanest animals I have ever seen. He seems possessed of almost human intelligence. Everybody admires him and he is the friend of all the children in the block. If there is a bad streak in him, we have never discovered it, but I know it is there and only needs

development. In his life, as I know it and as the neighbors see it, there is no need of *Elimino*. It would not benefit him in the least. Here then, *Degen* must be used to show that there is a dormant evil streak lurking in the system. I shall inject *Degen* at once and you shall see what you shall see. Then, when you are satisfied it will do what I claim for it, we will use *Elimino*."

The doctor thrust the needle through the bottle cork and stepping quickly forward, with well-trained hand, injected a few drops under the skin of the collie's left front leg. Almost instantly, a startling change could be noticed coming over the helpless animal. The clean, silky hair seemed to stiffen and become dirty, and rough looking; the kind intelligent eyes became glaring and steely, rolling in their sockets. With bared fangs the beast snapped at the doctor's hand as he extended it toward the table. He spoke to the writhing animal in a soothing tone of voice, but that seemed only to increase the beast's struggles. From the quiet, docile collie there had sprung, and almost instantly, into action and appearance, the man-hating wolf.

The scientists crowded around the table, wonder and amazement pictured on their faces at the strange action of the peculiar drug. What they now saw was a veritable beast of the forest or jungle. It was a demonstration almost beyond belief; something accomplished of which they had never dreamed.

Ample time was given them to view and comment on the appearance of the snarling, snapping creature before them, whose jaws were now dripping with foam. Then Dr. Sexton, with a smile on his face, stepped forward and said, "You see, gentlemen, *Degen* has brought out a quality that the collie seemed not to possess—I would say, that of the wolf. I hope you are convinced of what you see? When you are, I will inject the other serum and you will see a counter-action just as astonishing."

The needle was again brought into play. *Elimino* was injected and in a moment the dog became quiet. The bristling, dirty brown hair settled down on the body, becoming soft and fluffy. The eyes lost their wild, steely look; the snarling and snapping ceased. The entire physical makeup seemed to undergo a radical change and once again the docile collie looked up into his master's face, wagged his tail and licked the hand extended to him. Released from the straps, he sprang to the floor and quietly trotted out at the door, which the doctor held open.

Dr. Howard was the first to speak. "Dr. Sexton, we take our hats off to you. I will admit I had my doubts but I am convinced and I believe I express the opinion of my fellow scientists. It is wonderful, marvellous. But like you, Dr. Sexton, I do not believe it advisable to give it to the world. Much harm would result from the use of *Degen* in the hands of unscrupulous parties, and they would get it, no matter what precautions were taken to keep it out of their hands. I believe *Degen* should be destroyed and its ingredients forgotten. Dr. Sexton, has either one or both of these serums ever been tried on a human being? If not, do you think it possible to find a subject? It seems the penal institutions would be the logical place to give *Elimino* a fair trial."

"I have made some effort along that line, but so far have not succeeded. They too believed that my story was but the workings of an unbalanced mind. Perhaps, after learning of this demonstration, they

will see my offer in a different light. Sometimes I feel I should offer myself. And why not? Many a person has become a martyr to science. And although there would be no danger if the thing is perfect—and it is—yet I hesitate.”

“Have you tried advertising in the papers?” queried one of the scientists.

“No, I have not resorted to the newspapers as yet, but had thought of doing so. One reason why I brought you together was to get suggestions. If any of you can think of a better plan, I would be pleased to hear it. Anyhow, think it over. Meanwhile, beginning in tonight’s papers I shall insert an advertisement for a week. If a subject presents himself, hold yourselves in readiness to report here upon my call.”

The evening papers carried in a conspicuous place, the following notice: “Wanted—Dr. Paul H. Sexton desires a male subject for an experiment. The applicant must be strong and healthy, and one upon whom nobody depends. Such person will be amply paid for his services. Apply at once at Dr. Sexton’s Laboratory, 1416 Miller Drive.”

SLATS NELSON shambled across the floor in Dago Frank’s Beanery and slumped into the only vacant seat at the lunch counter. Not a known face met his gaze as he surveyed his fellow diners. This did not disappoint Slats for he was a stranger in the place, not from choice, but because of a burly brakeman and a short hickory club.

It seemed that for weeks past, Slats had been unable to pull off any kind of a job that meant money to him. Twice in the last three years he had done time up the river for that which had appeared easy. Hard luck had refused to be shaken and fate hung persistently at his heels. When he was released from the Big Farm after the last stretch, he had changed scenes and the going had gone from bad to worse.

The bowl of watery soup finished, he fished a slick dime, the last, from his pocket and tossed it on the counter. Slipping from the stool, he ambled across the room and out at the door. Outside the air was chilly and he shivered as he pulled the well-worn cap down over his eyes and buttoned the long, thin overcoat close to his chin. He stood on the sidewalk a moment, undecided which way to turn. Then shrugging his shoulders he headed south by east. The railroad yards lay in that direction.

Slats did not hurry. He had no definite place in view, so he walked slowly along, hoping something would happen that might at least bridge him over the night. Four blocks, and he turned in at the west gate of Newton Park. At the first green slatted bench he paused and drawing the coat closer around his slender frame, sank down upon it. A shiver passed over him as the keen east wind whipped through the shrubbery at his left and the dead leaves rattled in nearby trees. A newspaper came scurrying down the walk, tossed first to one side and then the other by the cold wind that was blowing from the lake.

At his right stood a small, unoccupied building and in front of him, beyond the wide stretch of sandy beach, the bottle-green water of the lake stretched out to meet the distant horizon. Nature had painted a beautiful picture here, but it held no charm for Slats, for he was cold, hungry and homeless.

Somewhere in the distance, a deep-toned bell struck five times and Slats moved uneasily on the bench. It was getting colder, too cold to stay there long, but where could he go, what could he do? The jail or workhouse loomed near for him. The paper rattled at his feet, where it had lodged, and he stooped to pick it up. It was a sheet from the afternoon edition of the *Times*. He was about to thrust it in his pocket, when his eye caught the following: “WANTED—Dr. Paul H. Sexton desires a male subject for an experiment. The applicant must be strong and healthy and one upon whom nobody depends. Such person will be amply paid for his services. Apply at once at Dr. Sexton’s Laboratory, 1416 Miller Drive.”

Slats read the notice twice. Then half aloud he said, “Well, that fits my case pretty well. I have no family, friends or relatives that I know of. I am penniless, luck’s against me and I’m facing the jail, workhouse or penitentiary. Why not? It couldn’t be worse. I’ll try; perhaps no subject has been found yet. I wonder where the place is? I’d better be moving; it’s getting dark.”

Digging his hands deeper in the side pockets of the long coat, he started to get on his feet, when there came a crunching of gravel at his side and a pleasant voice said, “Rather cool to be warming a park bench isn’t it, my friend?”

Slats turned and faced the speaker. Forcing a sickly smile, he replied, “Rather. But what’s a fellow to do when he has no home, money or friends and is stranded in a strange place? I guess I’ve endured this thing about as long as I can. I have always heard there was a limit to everything and I think I’ve about reached mine.”

The stranger whistled softly as he studied the man on the bench. Then he said, “My friend, you are a young man yet. You should not get discouraged. It may not be as dark as it seems. Surely it can’t be as bad as you think?”

“I don’t see how it could be worse,” Slats replied, as a shiver passed over his frame and he changed his position on the bench as a keen, icy wind swept in from the lake.

“How would you like to have a nice, warm meal, good clothes on your back and money in your pockets, enough to last you all winter, if reasonably used? But, by the way, what’s your name and where are you from? I may be able to do something for you along the line I just mentioned.”

“My name—well, where I came from they called me Slats Nelson. That’s as good as any I guess. It’s the only one I know or can remember. Sometimes it seems there was another, I don’t know. I am from everywhere and nowhere. If you are looking for somebody to do something, I’m your man. I’m ready to do anything for a bite to eat and a place to sleep. I believe I could even commit murder.”

THE stranger smiled. “Well I hope you’ll never be called on to do anything that bad. I believe you’re the very man I’m looking for. Here read this,” and he held out a paper with a heavy blue line drawn around a short article.

Slats glanced at the marked notice. “Why I was just going there when you came up. Do you know this Dr. Sexton? And have you any idea what he wants? The wind blew a bit of the newspaper against my feet when I first sat down here. See,

here it is," and he removed the paper from his pocket. "Could you direct me to Miller Drive?"

"Yes, I know where it is and I know what the doctor wants to do if he can find a subject, for I am Dr. Sexton. I was just returning from a call and was taking a short cut through the park. My place is only three blocks from here and if you can go with me I shall see to it that you get at least a good supper and a night's lodging, even if you decide not to go through with the experiment after it has been explained to you."

"I UNDERSTAND the proposition thoroughly," replied Slats, as he assumed a more comfortable position in the huge arm chair, "and am ready for the experiment."

Dr. Sexton smiled. "I was confident that you were my man the moment I saw you on the bench in the park. Good, I like your nerve. I can't see where there will be any danger attached to the experiment, but you never can tell."

"Nerve—why, I'm telling you, doctor, it has been nerve and nothing else that has kept me on my feet for weeks. I'm ready for anything, I don't care what. I'm getting desperate. As far as I know there is no one else in the world who will care a whoop if it kills me or not and I assure you I am not in the least afraid. My life for a long time has been one of misery. I am ready any time you are."

Dr. Sexton reached for the telephone. "Very well, Slats, I shall call those who witnessed the experiment on my collie. They will be here in a short time, possibly within the hour, at which time we shall proceed with the test."

It was a strange procession that filed down the long hall to the doctor's laboratory—an enthusiastic doctor, a tall, slender young man who walked calmly and indifferently, at his side, and a number of scientists, anxiety and expectation written in every feature and movement.

In the room, Slats stretched himself full length on the long, upholstered table and bared his left arm. Dr. Sexton walked hurriedly across the floor to the little wall safe and returned to the side of his subject. In one hand he carried a small bottle and in the other a hypodermic syringe case. Setting both on a convenient stand, he turned and faced his audience.

"Gentlemen, and fellow scientists: Very unexpectedly, I might say accidentally, a subject has presented himself for the test. This evening, while returning from a call, I met this man in the park. He was cold, hungry, and friendless, a stranger in our town. Understand, I did not take advantage of his condition and lure him here. He had seen my advertisement and was planning to come, when I happened along. Even now, at the last moment, he may refuse if he so desires. And if he goes into the experiment, he does so of his own free will. What do you say, Nelson?"

"All I have to say, Dr. Sexton, is, go on with the experiment; I am ready."

"Very well, you hear, gentlemen. Now just a few words more. Nelson has authorized me to say to you that for a period of several years he has led the life of a crook. He had no hesitancy in telling me. At first his intention was to try the experiment for the money there is in it. But since he has heard

what we expect it to do, he has decided to take the test for the good of the experiment and hoping it will make an entire change in his life. He is tired of being hunted day and night like the wild animal, always in fear, always in danger. Nelson has agreed to remain in this city a reasonable length of time and will report to me daily. He has made but one request, that he be placed under the influence of a sleep drug before the test is made. He asks this, not because he is afraid, but because if there is any merit in the serum, he will wake up a real man rid of all bad characteristics, and will remember nothing of his previous self."

IN a few minutes Nelson was sleeping. Dr. Sexton opened the case and removed the syringe and a small bottle of colorless liquid. He stepped to the side of the unconscious man, thrust the needle through the cork, lifted the bared arm and injected *Elimino* deep into the flesh. Almost instantly a change could be noticed. There was a long drawn sigh, followed by a quivering of the body. The head rolled from side to side and a slight moan escaped the lips. The fluid was working rapidly. The face began to present a different appearance; the drawn, shifty, hunted look was disappearing like a mist before the morning sun. The physical man was undergoing a wonderful change.

The scientists crowded around the table. Dr. Sexton stood calmly at Nelson's side, finger on wrist. The seconds ticked rapidly away. The room was still as death. Anxiety and anticipation was written on every face. What would the experiment develop?

Nelson's eyelids twitched and then fluttered open. A pair of keen gray eyes looked wonderingly up into the faces surrounding him and then wandered over the room. Slowly, he raised himself to a sitting position and passed one hand over his face. "Where am I and what is wrong?" he muttered. "I don't understand." And before anybody could reply, "Oh yes, I remember now. It was two balls and two strikes. The third was a wicked inshoot, too high, and I dodged it. I heard a crash, it must have hit my head and I knew no more. I suppose this must be a hospital? Are the folks here? I will go right down to them, for I feel all right now."

The men surrounding the table stepped back in amazement. What did it mean? What was the man talking about? Was his brain still clouded? Had the drug failed? Had it deprived Nelson of his reason?

Dr. Sexton turned and gazed speechlessly at the subject who was climbing down from the table. The man must not leave the room in his present condition, as the doctor saw it, so he said, soothingly, "Sit in this chair a moment, Nelson," and shoved one toward him. "I will give you something to quiet your nerves. You are rather shaken, as yet. I am Dr. Sexton and these men are physicians and scientists. This is my laboratory, not a hospital. Don't you remember coming here with me?"

Nelson, with a puzzled look, sat down. "Why I feel all right now, doctor. Never felt better in my life. No, I don't remember ever seeing you before. Why was I brought here? Why wasn't I taken to the hospital if the ball hit me? I can't feel any sore place on my head but I wish you would send for the folks. They'll be worried about me."

All this time the doctors and scientists assembled in the room had been silent spectators of the strange development of the experiment. They were dumfounded. What would the end be? And then young Dr. Parker remembered.

Back in his home town, a certain young man, Cal Porter, son of a prominent manufacturer, was a star player on the college team. He recalled that on a certain day, a young man had been struck by a pitched ball and apparently badly injured. He had been rushed to the hospital with a supposed fractured skull. During a temporary absence of nurses and doctors he had revived and escaped from the institution. Since his disappearance, no word had been received from him. All this Dr. Parker recalled, for he had been an interne in the hospital at the time.

"Great Heavens!" he exclaimed, elbowing his way to the young man's side, "it's Cal Porter. Where on earth have you been all these five years? Your folks have scoured the country for you and finally had to give you up as lost."

The young man gazed into Dr. Parker's face with surprise. "I don't understand you," he said. "You must be mistaken. My name is Cal Porter, all right, but I was struck on the head by a ball this afternoon. I must have been unconscious, as I don't remember what happened afterward. What do you mean by five years?"

Explanations followed, and Porter discovered that five years of his life had slipped away, perhaps forever, into the unknown shadows of a deep, clouded past.

Some time later he rejoined his folks in another state and took up the thread of life where it had dropped that afternoon five years ago.

Dr. Sexton is preparing to offer his wonderful discovery to the government to be used—if accepted and he believes it will be—as it deems best. For proof of its marvellous qualities, he will cite at least one case, that of Cal Porter, which will give ample proof of his assertions that Slat Nelson was eliminated forever.

THE END

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By A. MERRITT

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NOTICE

WE have had numerous requests from our readers to publish *AMAZING STORIES* twice a month, and inasmuch as we have not made a definite statement as to this phase of the magazine before, we wish to state the following:

The idea of publishing *AMAZING STORIES* twice a month has been abandoned for the time being, as being uneconomical and impractical, for a number of publishing reasons.

Several months ago, the experiment of an *AMAZING STORIES ANNUAL* was made and has proven more or less satisfactory. It is therefore proposed by the publishers that they will get out at more or less frequent intervals, a 50c *AMAZING STORIES* Supplement rather than an *ANNUAL*, to be sold on the newsstands.

Only a relatively small class of readers would buy *AMAZING STORIES* twice a month, so those who wish to buy additional scientifiiction literature will have their wish gratified by the supplement.

Readers of *AMAZING STORIES* will be informed in advance when a supplement will appear on the newsstands.

—EDITOR.

The PSYCHOLOGICAL SOLUTION by A. Hyatt Verrill

Author of "The Astounding Discoveries of Doctor Mentiroso," etc.



"Impossible!" the doctor snorted. "The man was not attacked by a dog. Why should he have grasped or clutched at the beast?" The young biologist . . . who dearly loved to tease the doctor, smiled. "That is not in my province to determine. All that I can swear to is that the specimen, No. 23657, submitted for examination and identification . . . consists of six fragments of hirsute growths from some undetermined variety of *Canis familiaris* . . ."

CHAPTER I

The Discovery of Columbus



HENRY COLUMBUS, khaki clad, his ebon face gray with ashes and dust, and driver of one of those two-wheeled abominations maintained by the municipality of New York for the reception of rubbish and the dispersal of dust over passengers, was industriously emptying the ash cans on the north side of West 85th Street.

It was a charming spring morning, and Henry, well content with the world and himself, was whistling cheerily while he worked. As he rolled the battered iron containers to the curb, and raising them, dumped their contents into his vehicle, he glanced at the miscellaneous odds and ends that poured from them, ever on the watch for some discarded but still serviceable article which he might salvage.

Farther down the street, and working east from Amsterdam Avenue on the opposite side of the thoroughfare, was Tony Celentano with his wagon. Like Henry, the Italian was also on the alert for chance treasure-trove among the rubbish.

As the dusky namesake of the famous discoverer reached the group of cans before a block of brownstone front houses, he noticed that one of the receptacles was filled to overflowing with a bulging, patched, burlap bag.

Whatever the contents were they were heavy, and wondering vaguely what the can contained, Henry heaved it over the edge of his cart. The bag, however, was tightly jammed into the can, and, in order to dislodge it, he was forced to clamber onto the half-filled wagon. Grumbling a bit at the extra labor involved, he grasped the sacking with a huge black paw and tugged at the bundle.

"Must be some folks' dawg must be daid," he muttered to himself, as he noticed the peculiar yielding, limp character of the thing. "Must 'a been some pup," he continued. "Spec' he one of dem perlice dawgs mos' likely."

Exerting more strength, Henry yanked the bundle, and the old burlap ripped open. The next instant the quiet street echoed to a blood-curdling screech, as the negro leaped from the wagon, and with wildly rolling eyes, dashed westward at breakneck speed, yelling as he ran.

Had it not been for Celentano, Henry might be running yet. The Italian, startled at his fellow worker's scream, and seeing his

mad dash, sprang across the street and seized Henry's flying coattails. Together the two rolled head over heels, Henry struggling to free himself and continue on his way; the Italian as intent on holding him and learning the cause of his fright.

Although the hour was early, the negro's screams had aroused the neighborhood, and boudoir-capped feminine, and tousel-haired masculine heads were appearing at windows throughout the block. Two yellow and three checker taxis were already racing for the scene of uproar, and milk wagon drivers and other early wayfarers were running from all directions towards the struggling men. Last of all—and most remarkable for having been in the neigh-

borhood when wanted—came a panting policeman.

As the latter pushed his way through the group that had gathered about the negro and the Italian, Henry caught sight of the blue uniform and found his voice at last.

"Lordy!" he gasped. "Lord A'mighty! T'ank de Lord you's come! Boss, dey's a daid man up yander in mah cart!"

Instinctively, at the words, every head was turned, and everyone gazed half fearfully toward the wagon, which still stood where Henry had abandoned it in his flight.

"Whatcha givin' us?" demanded the officer. "Come along here and show me watcha hollerin' about."

But Henry demurred. "No, sir, Boss," he exclaimed, fairly shaking with terror. "Ah ain' gwine near dat cart. No, sir, dey's a sack in a can wha's got a daid man inside. No, sir, Boss. Ah ain't aimin' to go meddlin' with no daid folks."

But with the officer grasping his collar, Henry, despite his protests, was dragged unceremoniously towards the cart, with the crowd following and Tony bringing up the rear.

Still skeptical, the officer stepped on the wheel hub and peered over the vehicle's side. Lying among the rubbish was the battered can, and where the rotten sacking had been torn apart, a human head was exposed.

"The smoke's right!" ejaculated the policeman. Then, turning to Celentano, "Here, you Wop, hustle around to the box and send in a call for a couple a men. Tell 'em there's a murder up here."

By the time the other officers had arrived on the scene, the usually quiet street was in an uproar, and a dense crowd filled it from Central Park West to Amsterdam Avenue. A hasty examination of the gruesome find was made, and the sack, which contained the body of a well dressed man, was removed from the wagon and taken to the police station, much to Henry's relief. But he vowed vociferously that he would gather no more rubbish cans with possible cadavers within, and an extra driver had to be sent for to drive the cart on its rounds and complete the collection of containers.

That a murder had been committed seemed evident. The dead man's clothes were stiff with dried blood, and an ugly gash just below the collar-bone showed how he had met his end. Naturally, therefore, the police immediately conducted an examination of the premises in front of which Henry had made his discovery, and of the occupants thereof.

But equally as naturally, without results. The houses, once the residences of well-to-do citizens, had been converted into furnished apartments and were occupied by tenants whose respectability and good standing could not be questioned. Not one, and for that matter not a resident of the entire street, could be found on whom the police could cast suspicion, though why the police should have imagined that a murderer or murderess would place the body of a victim under his or her own window was as great a problem as the crime itself.

And the mystery of the crime very rapidly deepened and became more and more involved. Even the dead man's identity was unknown. No one who

IN this story, we encounter our versatile author in an entirely new line of thought. While this story may not contain as much science as some others by Mr. Verrill, we are quite certain that you will be interested in it as a highly entertaining murder mystery that uses the science "psychology" in the working out of a successful solution.

in the least resembled the body had been reported as missing. There was no mark or clue that would throw light on the matter. The sack which had contained the dead man was so old and had been patched and mended so often that it was hopeless to endeavor to trace it. Not a soul in the street could remember ever having seen the murdered man, and the police were forced to admit at last—as they might just as well have done in the beginning—that the body had been brought from a distance and dumped into the ash can.

That such an easy and safe means of disposal of a corpse had never before been adopted by murderers was rather astonishing, and the very simplicity of the unique method of getting rid of the body made it the more baffling. At any time during the night, a motor car might have driven through the street and might have drawn in to the curb without arousing the least attention or suspicion. And, with equal ease, the body might have been carried from the car across the few feet of intervening sidewalk and dumped into an empty ash can. The street, during the night, was unfrequented and not too well lighted, and by waiting for a favorable opportunity, the criminal or criminals might easily have stepped from the car, dropped the sack with its contents into the container, and continued on their way as though nothing unusual had happened. Even had pedestrians been near, there would have been little chance that the murderer would have been noticed. The cans stood in heavy shadows between the high front steps of the houses, and no passer-by would have thought it unusual to see a car parked before a house or to see a man entering or emerging from the area-way under the front steps.

Indeed, residents of the block agreed that a number of cars had been through the street during the night preceding Henry's discovery, and that several of them had been drawn up in front of the houses where the body had been found.

In fact, by checking up, the police found that there had scarcely been an hour during the night when cars or taxis had not been in the street; but not one of these had attracted enough attention to cause the observers to note the license numbers, the body types, the colors or the makes of the cars.

For a time the murder mystery filled the papers. A thousand and one theories and suggestions were advanced. A score of people identified the body, only to be proven wrong as the supposed victims were duly accounted for. Then the whole affair lost its news interest and the public forgot it.

CHAPTER II

Doctor Thane, Psychologist

ALTHOUGH the press, the man about town, the subway perusers of the daily papers, and the public in general had forgotten the crime and its baffling mystery, two men were still deeply interested in solving it. One was the chief of detectives in whose district the body had been found; the other was Doctor Edmund Curtis Thane, the eminent scientist.

Doctor Thane had, on more than one occasion, proved of invaluable aid to the police in unravelling mysteries of crime, and yet he was neither a criminologist nor, in the ordinary sense of the word, an amateur or scientific detective. He was by profession an anthropologist, and most of his waking

hours were spent in his office on the fifth floor of the American Museum of Natural History, where he pored over scientific reports and studied fragments of the skeletons of long dead and forgotten human beings of strange races. He had traveled widely, especially in out-of-the-way regions and among primitive savages, and he had written numerous monographs on the results of his researches and studies. These had been undoubtedly of the greatest scientific interest and value, but were utterly unknown to the public at large; for that matter, neither was the Doctor himself.

For years the short-sighted, quiet, pleasant-faced little scientist had been striving to solve the age-old puzzle—the origin of man and the relationship of races. He had attacked the problem from every angle, and having at last reached the conclusion that it was impossible of solution from accepted viewpoints, it had occurred to him that greater progress might be made from the psychological standpoint.

From the very first his studies along this new line met with marked success. Men's bodies and bones, their lives and habits, their dialects and arts might be greatly influenced and altered through environment. But the mind, the psychology of the races, he theorized, would remain steadfast, and even if undergoing a change through external influences, would retain the ancestral characters and serve to connect the various races far more reliably than pigmentation of skin, dialects or other characteristics of the human race.

Moreover, so Doctor Thane reasoned, it would be in the psychological reactions of the more primitive and ignorant types of mankind, that valuable discoveries would be made. So, following his hypothesis, Doctor Thane turned his attention to the mental workings of the criminal classes. It was his belief and contention that crime, as defined by law and civilized standards, was merely the result of a psychological condition, a reversion to the ancestral type, a manifestation of our prehistoric ancestors' mental processes. Scientifically speaking, it was not crime at all; it was natural, and the criminal was no more responsible for it, than he or she is responsible for the color of his or her hair or eyes or the form of the skull.

Assuming that this were so—and of this Dr. Thane was firmly convinced—then the study of crime and the analysis of criminals' minds were the paths to follow in his studies. Hence the mild mannered, spectacled little man of science at once interested himself in matters usually left to the police. And as he was a man who never did anything by halves, he made as deep a study of crime as he had of skeletons and shards in the past. The more involved, inexplicable and unsolvable a crime, the more it fascinated him. Looking, as he did, upon crime from an entirely new viewpoint, and being the possessor of a truly remarkable intellect, keen reasoning powers, deductive ability and a wonderful memory, and being thoroughly conversant with the habits, lives and points of view of nearly every savage and barbaric race, Dr. Thane soon proved himself a master mind at solving mysteries which utterly baffled the officials.

Personally, he cared not a jot whether a criminal was brought to justice or not. Rather, he would have preferred—for his purposes—to have the violators of the law turned over to him for study, instead of being summarily dealt with, or through the medium of the electric chair or a hangman's rope,

remove their mental processes forever from all possibility of scientific investigation.

As he was forced to cooperate with the police in order to carry on this most interesting research successfully, it naturally followed, as a rather regrettable but unavoidable result, he thought, that his cooperation inevitably resulted in the removal of his subjects from his sphere of studies at a most inopportune time. Hence Dr. Thane could not be included in the category of a detective or criminologist. Though he had studied all available works on crime and the methods of world famous investigators, he had discarded all recognized and familiar lines of his predecessors, and went about his investigations in a totally new way.

For the detective heroes of fiction—Sherlock Holmes and similar characters—Dr. Thane had the greatest contempt. The mysteries of literature unravelled by these wonderful characters were very different from the real things. The author of the tale worked backwards, building up a series of incidents, of baffling puzzles and of misleading clues to fit a solution already prepared and known in advance. In actual practice, however, the investigator had to build up and find a solution from whatever fragmentary information he could obtain. But just as the famed hero of Sir Conan Doyle's stories was wont to deduce the truth through his miraculous knowledge of everything from the distinctive ashes of various tobaccos to the chemical properties and peculiarities of every ink and paper, so Dr. Thane proved himself able to deduce the truth through his even more marvelous knowledge of human minds and primitive psychology. Very often he could solve a seemingly insoluble mystery without moving from his comfortable study chair. Having absorbed the known facts, he would lean back, place the tips of his long fingers together, half close his eyes and concentrate his mind. Then, after a few moment's silence, he would mutter, something like this, half to himself:

"A clear case of reversion to, nomadic, polygamous ancestral traits. Probably of Cro-Magnan affiliations influenced by Semitic fanaticism and inherited Mongol traits and tribal customs. Let me see. Ah, I think you will find that the crime was committed by a short, stocky, dark-haired man with a narrow receding chin, rather heavy projecting brows, a sloping forehead, high cheek bones, a prominent nose, thick lips and sparse beard. He will, I think, have restless, shifty eyes of uncertain hue. He will be quick and active for a man of his build; he will in all probability have bowed legs and long arms, and will be of a roving disposition. You will undoubtedly find that he has changed his residence frequently, has had a number of wives—very likely a bigamist—or at least has lived with several women coincidentally; that he is a thief and a pick-pocket, if not a burglar, and is, at least outwardly, very religious."

These, and many other details outlined by the scientist, would be proved as amazingly accurate as though Dr. Thane had been present when the crime had been committed.

Very carefully, too, he had recorded every minute detail of every crime he had studied, had tabulated the results, and had jotted down the deductions he had drawn from his analysis of each case. But he discovered, in studying these results, that there had been a lamentable lack of variety and originality in

the crimes which had come under his observation. For more ready reference and comparison, he had divided the cases into groups, arranging them according to the psychological and racial facts drawn from them, and he found that many links in his chain of evidence were woefully lacking.

Most of the cases were, so to speak, negative. Many were so similar that they might be considered duplicate specimens in his collection. And, to his chagrin, he found that comparatively few races had taken part in the committing of acts against the community. To be sure, there were those baffling East side murders, which Dr. Thane had solved by tracing them to Ethiopian savagery actuated by an inherent belief in Obeah and devil worship. There were the almost equally inexplicable crimes of the Malay which had been cleared up by the scientist's deep knowledge of Malaysian beliefs and mental processes. And there were a number of Mongolian crimes. But the great majority were those committed by Europeans, by men or women of mixed ancestry and mental characteristics so involved, that even Dr. Thane despaired of drawing logical and unassailable conclusions from them.

Indeed, he had almost despaired of carrying to the end this most fascinating investigation, when he learned of the discovery of the body in the ash can.

CHAPTER III

Dr. Thane Draws Some Conclusions

WHEN Dr. Thane first undertook to unravel criminal mysteries by means of psychological anthropology, he was laughed at by the police. Not that the officials of the department, or their underlings, openly ridiculed him, for Dr. Thane was far too prominent a man, and possessed far too many influential friends and sponsors to warrant that. But he was looked upon as a harmless crank, a "bug hunter" as the police put it, who had a nonsensical hobby, and many were the jokes and loud laughter at his expense when he was out of sight.

But time after time he proved the correctness of his hypotheses and the accuracy of his deductions, until even the most skeptical and hard-headed of the police force became convinced that there was "something in it."

And one of the strongest believers in Dr. Thane's powers was Detective Captain Haley. Openly, and even to the scientist, he pretended to have little faith in scientific methods. He had many a heated, though good-natured and friendly argument with Dr. Thane on the subject, yet invariably he sought the scientist's aid whenever he found himself baffled.

He had lost no time in acquainting Dr. Thane with the known facts regarding the body found in the ash can on 85th Street.

And as Dr. Thane listened, his eyes fairly glowed and his ruddy face beamed. Here at last was just the case he had longed for; just the case he had foreseen and had been expecting. This statement may need a few words of explanation, otherwise the fact that the scientist could foresee a certain crime before it was committed, sounds far too much like imaginative fiction.

With the thoroughness characteristic of Dr. Thane in all matters, he had approached his present hobby at every angle. Not content with merely tabulating results and facts, and forming conclusions therefrom, he had taken racial and psychological facts also and

from them created hypothetical conditions. In other words, he had built up imaginary crimes as they were to be committed, theoretically, by certain types under the influence of certain mental processes.

And among these was one which, as far as he could judge by the meagre details imparted by Captain Haley, seemed the exact counterpart of the present mystery.

Therefore Dr. Thane was highly elated, and he hurried to the detective's office to secure further facts, and permission for full rein in carrying on his investigation.

This, of course, was immediately granted. Rubbing his hands and beaming through his glasses at this great opportunity, the scientist prepared to unravel the mystery revealed by a negro rubbish collector.

Doctor Thane at once proceeded to the morgue. Although he might unravel a mystery through psychological manifestations recognizable only to himself, still, as the key to these was usually to be found only in the visible results of the criminals' acts, an inspection of the murdered man's body was of first importance.

To be sure, the man's identity was unknown, but this really mattered little to the scientist. The nationality or rather the race of the victim, the manner in which he had been killed, and many other details were all links in the chain of reasoning followed by the scientist in his unique method of criminal investigation.

It may, at first thought, appear strange, that having invented a hypothetical case so similar to the one he was investigating, Dr. Thane should not have tried to solve the mystery by the purely imaginary incentives and racial characteristics which he had evolved. But it must be remembered that he was pre-eminently a scientist, a man who dealt in hard and fast facts. While, like other scientists, he might theorize and let his mind wander along the untrodden paths of his fancy, still he considered no point worthy of real consideration, and no hypothesis proven, until borne out by indisputable facts.

It would have been a simple matter to have remained in his office, and from the notes on his imaginary case, given the police a most vivid and detailed account of why and how the murder had been committed, of the race, personal appearance and characteristics of the murderer, and even of the conditions under which he had committed the crime. But he was anxious to prove that his theory was correct; that racial psychology could be depended upon; that it was possible to classify the affiliations of the various races through their mental reactions. And if direct investigation showed similar conditions, and disclosed a criminal such as he had imagined, then indeed would he be triumphant and his theory proven—at least in the present case.

But very soon Dr. Thane found to his chagrin and amazement, that aside from minor details and known facts, the "ash can murder" was not at all like his theoretical case, and that as far as his deductions were concerned, he was all at sea.

The body, as the police and press had already informed him, was that of a middle-aged man. A man of somewhat stocky build, under the average height, with well developed muscles and clean-shaven face of dark complexion. The hair was black, or very dark brown, slightly grayed over the temples. The eyes were of a peculiar hazel shade, and the teeth,

with the exception of two molars which had been extracted, were perfect. The clothing consisted of a cotton union suit, gray lisle socks, a Madras shirt of blue and white stripes, soft collar, a dark blue bow tie, tan oxfords and a suit of mixed gray tweeds. No hat had been found, but from the marks on forehead and hair, Dr. Thane felt sure that the man had been accustomed to wearing a soft felt hat.

Having examined the body and the clothing, the scientist turned his attention to the wound, which had evidently caused the death of the murdered man. It was a deep, rather jagged wound just below the collar-bone on the left side, and had severed the arteries. It was such a wound as might have been made by a broad-bladed knife, a knife, thought Dr. Thane, such as a sailor might have carried, although a butcher's knife, a hunting knife, a carving knife or even an ordinary kitchen knife might have served equally as well.

"Hmm," muttered Dr. Thane to himself. "Evidently not a premeditated crime. Whatever the weapon, it had not been prepared in readiness for the crime. It was a dull weapon, neither keen-edged nor particularly sharp-pointed."

In fact, as the scientist examined the wound more carefully, he discovered that the weapon had torn and punctured the skin and flesh rather than cut the tissues, and that fragments of the shirt and clothing had been carried into the wound, while the rent in the garments was ravelled and torn and not at all cleanly cut.

Dr. Thane, whose curiosity was now outweighing his scientific interest in the case, pondered. "Died of hemorrhage," he ruminated. "Death quick and probably painless. No signs of a struggle is indicated by condition of apparel. Hmm, must have had copious flow of blood, but little on clothing with exception of shirt and shoulder of coat."

"Strange," he continued, as he jotted down notes. "Odd that there should have been no struggle, no other wounds, no abrasions as of blows or scratches from finger nails. Very odd. Wound inflicted from in front. Hmm, either delivered by assailant who was in plain view, by a left-handed man from the rear, or while the victim slept."

The latter theory, however, was abandoned at once. It would have been impossible, the scientist assured himself, to have delivered the blow while the victim was reclining. Even if he had been resting on his back, or partly on his right side, it would have been a most difficult matter to have struck the blow without the hand of the assassin coming in contact with the bed or other object on which the victim was reposing. Moreover, the gush of blood which must have followed would have drenched the back of the murdered man's garments, whereas all the blood, and it was amazingly little for such a wound, was upon the front of the coat and shirt, as though the man had been lying face-down and with head lower than feet, or had been stooping or bending forward when he met his end. But how, wondered Dr. Thane, was it possible for a person to drive a dull weapon into a man's shoulder from the front if the victim were resting on his face or bending over? It was a physical impossibility, and the only explanation of the puzzle was that the man had slumped forward when the blow was delivered, and had remained in that attitude until the flow of blood had ceased. The other theories, that the blow might have been struck by a left-handed man from

the rear, was also discarded. Even if the assailant had been left-handed—a right-handed assassin striking a man down from behind would naturally deliver the blow on the right shoulder—he would scarcely have reached so far forward as to cause his weapon to enter the shoulder in front of the collar bone.

And even assuming that such an almost untenable condition had occurred, it would have required an enormously tall man to have accomplished the stroke.

Having thus mentally disposed of these two theories, there was nothing for Dr. Thane to do but assume that the blow had been delivered by some one standing face-to-face with the deceased. But here, again, the scientist ran against a snag.

Why had the murdered man stood there awaiting the blow that was to cause his death, apparently without the least resistance? Of course, meditated the scientist, there might have been a short struggle, or the victim, not expecting the blow, would have had no time to grapple with his assailant.

Also, a man might struggle for a few moments without leaving visible evidences on his person or his garments. Possibly, he thought, a minute examination of hands and finger nails might settle this question, might reveal hairs, a bit of skin or even fragments of clothing torn from the assassin.

With his powerful pocket lens, the scientist went over the hands and fingers of the corpse with the utmost care. The palms were free from callouses. It was evident that the dead man was not a sailor or laborer, and the nails were cut or bitten very short. But to Dr. Thane's surprise, the palms were grimy, and bits of earth and fine gravel were pressed into the skin.

"Ah!" he exclaimed. "My assumption in one respect was correct. He fell forward when wounded and his hands came forcibly in contact with the earth."

With his curiosity now thoroughly aroused, and more intent on solving the puzzle which confronted him than on proving his scientific theories, Dr. Thane carefully removed samples of the earth and sand from the dead man's hands and preserved them. Then washing the coating of grime from the palms of the corpse, he discovered a number of deep scratches.

"Ah ha!" he thought. "Now we are getting at matters. There was a struggle."

But the next moment he shook his head. The scratches had evidently been made by the contact of deceased's hands with the earth. Not until the scientist had once more gone over both hands with the utmost care did he discover anything of interest. Then, adhering to the edge of one of the scratches, he discovered several small hairs, and preserving these, he rose, a little more satisfied.

"Evidently he attempted to grasp his assailant and clutched at his head," he decided.

Next, he began an exhaustive search for possible clues to the man's identity. The outer garments bore the name of a tailoring firm—"Goldberg and Sons," but no address. The shirt and collar, as well as the tie, socks and undergarments, were all of well known makes and exact duplicates of countless thousands of others sold at department stores and haberdasheries throughout the world. The shoes were manufactured by an enormous company which maintained a chain of retail shoe stores, and there was not an initial, a laundry mark or any other distinguishing mark on any article of the dead man's apparel.

In the pockets, the only objects found by the police had been a plain handkerchief, a package of cigarettes, some loose change, a bill-fold containing a little over one hundred dollars in small bills, and a silver watch of Swiss make.

Very evidently, robbery had not been the motive for the crime, and Dr. Thane felt a little more content. He had not expected robbery. In his theoretical case robbery had had no place, and he began to think that the case might prove to confirm his theories after all, even though it presented unexpected aspects and unusual and puzzling details.

The police had already made a systematic, and very thorough attempt to establish the man's identity through the slender clues they possessed. They had tried every means of tracing the various garments, but without success. It was hopeless to attempt to trace the underwear, socks, shirt, tie or collar. With the exception of the shoes, the wearing apparel bore no numbers or marks which would enable the manufacturers to identify them or throw any light upon the purchaser.

The shoes, although bearing the makers' lot numbers, and the retailer's price and lot marks, could only be traced as far as the store where they had been bought, and not a store in New York had sold them. Throughout the country, in every town or city of any size, as well as in many foreign countries, the same make of shoes was on sale, and the manufacturers had supplied the police with a list of several hundred cities to which shoes of the same lot had been consigned. To follow up all of these would take weeks, and the police felt sure such an investigation would amount to nothing. There was not one chance in a million that the clerk who had sold the particular pair of shoes would remember to whom he had sold them, and still less chance that he would have known the purchaser's name.

The watch bore the mark of a jeweler who had repaired it; but so far the police had been unable to locate the man or firm who had done the work. The handkerchief was one of the seapackerchief type, and was impossible to trace. There were no means of tracing currency, cigarettes or matches, of course, so only the bill-fold and pocket knife, and the tweed suit remained to furnish possible clues. The bill-fold bore the words: "Casa Leda," but no address. The knife might have been bought anywhere at any time, and there were hundreds of "Goldberg & Sons" in New York and elsewhere. Nevertheless, as this name seemed to be the most promising lead and only hope, a canvass was made of every "Goldberg & Sons" in New York. But each and every one of them disclaimed having made or sold the garments found on the dead man. Each and every "Goldberg & Sons" also informed the police, with many expostulations—as though anxious to avoid even a remote connection with the blood-stained garments—that there were "Goldberg & Sons" in every city in the United States; that tailors of that name were located in London, Paris, Havana, Porto Rico, Panama, and no doubt in every city of the universe. Hence further enquiries along that line were abandoned.

Meanwhile, of course, many people had visited the morgue to view the corpse in an attempt to identify it. Some were no doubt actuated merely by morbid curiosity, but many came with sad faces and tear-dimmed eyes, expecting and fearing they would find the body of some missing relative. Most of them

brightened as they failed to recognize the dead man, and left the dismal place vastly relieved. A few were uncertain, not sure whether or not the deceased was some one they had known in life, and at least twenty individuals declared positively it was so-and-so, each naming a different person. It was soon proved, however, that they were all mistaken. In several instances the supposed victims were located, alive and well; but mostly some certain mark, scar or other peculiarity that would make identity certain, was missing.

Indeed, one of the most unusual and puzzling features of the case was that the dead man was absolutely free from any marks or peculiarities which might establish his identity. There was not a mole, wart, scar or birthmark on his entire body.

And the more Dr. Thane studied the case, the more he applied his theories and hypotheses, the more puzzled he became, for no matter at what angle he attacked the problem, he found himself checkmated and all his preconceived assumptions absolutely worthless.

CHAPTER IV Science Falters

HARDLY had the scientist commenced his investigations when he discovered that he could not hope to solve the mystery by psychological means alone.

For the first time since he had become interested in crime, he would be forced to resort to more conventional methods in order to gain some tangible starting point from which to reach what was to him, the utmost phase of the crime.

He had expected that the body would prove to be that of a Latin-American, probably with an admixture of Indian, and very likely some negro blood; that the murder would have been committed by a knife thrust; that the corpse would have been disposed of in some novel, rather conspicuous manner; that great cleverness would be exhibited by the murderer in covering his tracks; and that all means of identifying the victim would be destroyed. He had expected that the assassin, having enjoyed the notoriety of the crime and the fact that he had mystified the police and public, would, true to the Latin-American mixture of Indian and Spanish psychology, become theatrical and would send anonymous letters, or insert notices in the papers, dramatically challenging the authorities to find him, and, in the end, would betray himself by his own irresistible fondness for occupying the center of the stage.

All this, and many more minute details were embodied in Dr. Thane's imaginary case, which had been worked out theoretically from the scientist's knowledge of the Indian-Spanish mental characteristics, the conflict of the romance, dramatic egotism, quick temper and deadly fury of the Spaniard combined with the cunning, stealth, stoicism and fatalism of the Indian, plus the highly imaginative natures of both. And Dr. Thane's premises, the fact that he had selected such a crime with men of such a race, was due largely to the fact that no Latin-American crimes of a serious nature had come under his observation, despite the fact that the Latin-American population of New York was increasing at an amazing rate and that, inevitably, such a crime was bound to occur some day.

The disposal of the body was in exact accordance with what he had expected. The fact that the victim

had been stabbed also agreed with his theories; but there, figuratively speaking, he came against a stone wall.

In the first place, he was not at all sure that the dead man was a Latin-American or even of Spanish blood. He might have been of almost any European race or of almost any mixture of races. Aside from the bill-fold bearing the words "Casa Leda," there was not a shred of evidence to lend color to the assumption that the deceased was Latin. Even this evidence was negative and wholly circumstantial. The bill-fold might have been a gift; it might have been purchased at any one of the scores of little stationery shops conducted by men of Spanish blood in New York, or in some other American city, or the owner might have purchased it while traveling in Spanish America.

To be sure, the man had been stabbed; but no assassin, accustomed to using a knife or a dagger, would have used such a dull weapon, whereas no expert at stabbing would have dealt a blow in such a place and position.

Possibly, thought the scientist, an examination of the grit from the dead man's hands might throw light on the matter, for the material might, to a geologist's eyes, reveal peculiarities which would locate the scene of the crime. Then there were the hairs which had been found adhering to the abrasions on the man's hands.

These were, in fact, Dr. Thane's greatest hope. But he was doomed to disappointment when a microscopic examination of both hairs and grit had been made.

The hairs were fine, light reddish in color, and the zoologist to whom they were submitted declared they were the hairs of a dog and not of a human being.

An equally eminent geologist informed Dr. Thane that the minute bits of gravel were not from any spot within hundreds of miles from New York, and consisted of auriferous chromite sand.

"Great Scott!" exclaimed Dr. Thane, losing all his accustomed calmness and equanimity. "You mean to say—why according to that, the body must have been carried, er—hundreds of miles from the spot where the crime was committed."

"The nearest locality where such auriferous chromite sand occurs is, as far as my knowledge goes, in Central America," replied the geologist. "Though, to be more exact, northern Colombia is a few hundred miles nearer New York."

"Fiddlesticks!" cried Dr. Thane impatiently. "Either one is impossible. The body had not been embalmed or frozen. It would have been an utter impossibility to have transported it otherwise for such a distance. Besides, the coroner assures me the man had not been dead longer than twenty-four hours."

"I do not pretend to be either a detective or a criminologist," replied the geologist with a tinge of sarcasm in his voice. "I might, however, suggest an airplane. Perhaps the machine flew low over the street and dropped the body into the ashcan. Why don't you search for some aviator who was a skilled bomber during the war?"

"And I would suggest that you devote your misplaced brain powers to studying the gravels in the vicinity of New York more carefully," retorted Dr. Thane, who always resented being jollied by his fellow scientists. "I'll wager there are chromitic gravels near here."

"If so, and you can locate them, then you will have made a more useful discovery than solving the mystery of a murder," declared the other.

And Dr. Thane was almost as amazed and as indignant at the knowledge that the hairs he had counted upon were merely those of a dog.

"Impossible!" he snorted. "The man was not attacked by a dog. Why should he have grasped or clutched at the beast?"

The young biologist who had examined the hairs, and who dearly loved to tease the doctor, smiled. "That is not in my province to determine," he replied. "All that I can swear to is that the specimen, No. 23,657, submitted for examination and identification by Doctor Edmund Curtis Thane, consist of six fragments of hirsute growths from some undetermined variety of *Canis familiaris*; that the color is reddish-fawn, and that stains upon them, having been microscopically examined, prove to be dried human blood, perhaps from the abrasions upon the human hand from which, the note appended to the specimen states, the hairs were obtained."

Dr. Thane looked as if he was about to explode.

The other grinned. "Possibly, as a theory," he continued, "I might suggest that the deceased came to a violent end in a fight over the possession of a dog. Or again," he went on, not in the least perturbed by the other's contemptuous glare, "the deceased may have been a kindly disposed person who, in trying to protect a dumb animal from a brutal master, was struck down by the owner of the beast. That, Doctor, would account for the dead man bending or stooping forward. Why!" he cried, as though carried away with his idea, "perhaps the other fellow held some object—a stick, iron rod or something, in his hand. Perhaps he had been beating the pup with it, and your dead man, in his impetuosity, ran against it and punctured himself."

"Humph!" blurted Dr. Thane, thoroughly out of patience. "I suppose your rattle-brains will next suggest that the dog carried the body to Eighty-fifth Street and dumped it into a rubbish can."

"One's as likely as the other," chortled the younger man, as Dr. Thane strode from the room.

But despite the scientist's chagrin, and the fact that he found his carefully worked-out theories tumbling about his ears, he was not one to abandon an idea or an effort easily. He still felt convinced that he was right, that even if the actualities did not dovetail with his theories in details, still he would triumph eventually. His next step, therefore, or I might better say, his procedure coincident with the other expert examinations, was to secure specimens of blood, hair and skin from the dead man.

In these, he felt, lay indisputable proofs of the murdered man's race. A very small proportion of African blood would, he knew, lend a peculiar form to the hair sections, this being brought about by the oval-shaped negro wool. Also, Dr. Anderson had recently startled the medical and scientific worlds by claiming that, by means of a newly discovered method, he could determine the race, the approximate age, the sex, and even the maladies of a subject from a specimen of blood. Even if these tests failed, or gave negative or contradictory results, the pigmentation of the skin should, Dr. Thane felt sure, determine whether the deceased were of white, negro and

white, Indian and white, or any other distinctive racial blood.

So, having duly sent the specimens to the greatest authorities and experts in their respective lines, Dr. Thane impatiently awaited the reports.

The first to reach him was from the expert who had conducted the examination of the dead man's hair. As Dr. Thane perused the rather lengthy report, he became more and more puzzled and more and more incredulous. The hair, so the expert declared, showed a section distinctly unique. In fact, it was unlike anything described or figured in any work on the subject. The sections showed an irregular, somewhat pentagonal form, and to prove that he had made no mistake, he had forwarded a microscopic slide of the mounted specimens. Hence, he concluded, he was utterly unable to place the subject's race.

Following close on this, came the report from the great man who had devoted much of his valuable time to a most searching examination of blood specimens. But the report on these was just as negative as that of the hair specialist. The blood, he stated, showed that the subject was a male, between thirty and forty-five years of age, a strong man physically, in perfect health at the time of his death, although he had suffered from pernicious malaria in the past. There were, he continued, certain features of the specimens which he should say indicated a strain of Indian, and there were somewhat doubtful signs of both negro and Mongolian blood; but the most prominent characteristics were unquestionably Caucasian.

This was encouraging, despite the fact that most of the facts obtained were already known to Dr. Thane. If the deceased was, as the scientist had expected and had assumed, a Latin-American, then the blood specialist had been right; there would be traces of negro and Indian blood in the specimens submitted. And if, argued the scientist, the report on the pigmentation of the skin confirmed this, then he would have been proved correct, for the puzzling hair neither confirmed nor contradicted the other report. But when at last the report on the skin reached Dr. Thane, he was as far from making headway as ever. The skin, so the report stated, showed no traces of either African or Indian pigmentation, but was distinctly Caucasian, with some doubtful characteristics pointing toward a slight Mongolian strain.

"Hmm," mused Dr. Thane, "All this time wasted on these investigations and no definite results. I wonder what the fellow actually was. Let me see. To sum up: Assuming all the reports correct, we have—Caucasian, predominant; Mongolian, fairly certain, as reported both in skin and blood; possibility of African and Indian. Hump! By Jove!" suddenly alert. "That would be possible, yes, highly probable, for a Latin-American. But the hair! Freak, abnormal, an aberrant form of growth probably. Yes, I—"

Dr. Thane's thoughts were rudely interrupted by the jingle of his telephone bell.

"That you, Doctor?" came in familiar tones. "Yes, this is Haley speaking. Can you meet me at the morgue in twenty minutes? Have a man here who feels positive he can identify the body of the ash-can murder. What's that? Oh, yes. Just arrived in the city. Thought you'd be interested."

CHAPTER V

Positive Identification

DR. THANE reached the morgue a few minutes before Captain Haley, who was accompanied by a rather good-looking man dressed in neat but inexpensive clothes. His face was deeply sunburned, and something in the expression of his gray eyes and his manner told the scientist that he was a member of the seafaring profession.

The detective introduced him as Captain Scarsdale, adding the information that he had arrived on his ship the preceding evening. Having seen the pictures of the murdered man in some old papers, and being sure that he had recognized the victim of the tragedy, he had lost no time in coming to identify the body.

"If you have no objections, Captain Scarsdale," said Dr. Thane, "I would like to ask you a few questions before you view the body. As, no doubt, Mr. Haley has told you, we have had many identifications, all of which have so far proved incorrect. Very often, I have found, a man's or a woman's mental processes play them false. Having once come to the conclusion that they know the deceased, they always see a resemblance in the cadaver's altered countenance and features which, in their rather excited psychological state, appears most striking and unmistakable. As a result, they feel positive that the body is that of the individual whom they have already, quite unconsciously, decided it to be!"

The mariner laughed. "Guess you won't find me much excited or making any mistake," he declared confidently. "But I see your point. Sort of auto-suggestion, as the books call it. Folks make up their minds it's Tom, Dick or Harry, and jolly 'emselves into believing it is, eh?"

"Precisely," agreed Dr. Thane. "But if you will answer a few queries before viewing the murdered man, it may make identity more certain. Would you mind giving us a detailed description of the man whose body you surmise was found?"

"Not a bit," declared the captain. "Chap about five foot six; stocky build, black hair a bit gray on the sides; eyes grayish-brown—guess you'd call 'em hazel. Small black mustache; good teeth, and about forty-six years old. How does that fit?"

"Excellently, excellently," cried the scientist. "But not exactly. You say this man wore a small mustache. The body has a clean-shaven face and there are no signs of his having recently shaved off a mustache."

"I haven't seen him for six years," replied the seaman. "Very likely he'd given up his mustache long before he was killed."

"And can you—do you know anything about his teeth, whether any were crowned, filled or extracted?" asked Dr. Thane.

Captain Scarsdale hesitated for a moment, a puzzled frown on his forehead, as though he were trying to concentrate his memory. "Yes," he announced at last. He had two teeth missing. One double tooth on the lower jaw—starboard side, I think, and 'tother missing from port on upper jaw."

Dr. Thane beamed. "That exactly agrees with the teeth of the corpse," he declared. "Now, Captain Scarsdale, we'll view the body."

"That's him," announced the sea captain decisively, as he gazed, quite unmoved, at the gruesome exhibit. "Couldn't make a mistake after being ship-

mate with him nearly five years. Yes, sir, that's Peter Underdunk, and a right proper sailorman he was, too. Mighty sorry I am to see him come to this. But he always did have the devil of a temper and was forever getting into trouble."

"Underdunk, you say?" repeated the scientist. "A Dutch name. Odd, I should not have thought the dead man a Dutchman."

"He wasn't," declared the captain, as the three turned away. "At least," he continued, "he wasn't a Hollander. He came from the Surinam Country, Dutch Guiana, you know. Reckon he had a lick of the tarbrush—most of the Surinam Dutch do."

Dr. Thane was mentally patting himself on the back. To be sure, the sea captain's identification had proved his theory of the Latin-American origin of the murdered man wrong, but, in a way, it had sustained his conclusions. He *was* South American, about as close to a Latin-American as was possible, and though the Caucasian blood was Dutch instead of Spanish, still, undoubtedly negro and Indian blood had flowed in the dead sailor's veins. And it was not unlikely that there had been a dash of Mongolian in addition. Moreover, and as this thought crossed his mind, Dr. Thane saw many puzzling matters made clear, Dutch Guiana's population included a very large number of East Indians, thousands of Javanese, and not a few individuals of Polynesian, Melanesian and Dyak blood.

For all anyone could say, all of these racial strains might have been mingled in the later Peter Underdunk's make-up. Hence, it was not surprising that the hair, skin and blood had mystified the experts who had examined them.

The detective's voice was now interrupting the train of mental reasoning flashing through Dr. Thane's brain.

"Mighty glad you've settled that, Captain," he was saying. "Now we may be able to get somewhere. Do you know anything about Underdunk's habits? Anything about his life? Where he's been, what he's been doing since he left you? Know anything of his family; who his friends were, or if he had any enemies, or if there was anything that might furnish a motive for his having been murdered?"

"I'm afraid I can't help you much," replied Captain Scarsdale. "Here's all I know. Peter shipped with me as second officer—I was chief—on the *Wanderer*, bark, when we were at Barbados. That was about eleven years ago; can't give the exact date, but it doesn't matter much. He stuck with me until I got my billet as master. Then he served as my first on the *Eulalia*, freighter, until he got a better berth on a fruit boat, where he had a chance of getting a master's papers. Last time I saw him alive was at Colon, six years ago. He'd been in a fracas there—some sort of mixup with the Spigs. Later, I heard he'd lost or given up his job and was doing shore duty at the Atlantic Company's docks over in Brooklyn. Don't think he had any folks; never married; but maybe he had relatives down in Poramaribo. Good chap, but hot-headed. Didn't drink over much, and I can't say who his friends were. You see, I went overseas during the war and lost track of him. I expect he had a bunch of enemies—most of us have—but I don't know who they'd be. Any Wop or Dago that he'd fired from a stevedore gang might have knifed him."

"If they had, they'd likely have taken his roll," commented the detective.

"You bet they would," assented the other. "Guess that let's them out of it.

"Might have had a row over a girl. Peter was nuts on the ladies."

"Would you object to stating how you happened to be so familiar with the exact condition of his teeth?" asked Dr. Thane, who had been mentally reviewing the details of the interview and identification.

"That's simple," laughed Captain Scarsdale. "Peter had a bit of an argument with a hand from St. Thomas—big square-head chap—and in the mixup, Peter's teeth got knocked out. One was broke off and ached him like the devil, and he asked me to plug it for him until he could get the root hauled free by a dentist."

"I see," murmured the scientist. "But you say that Underdunk was a sailor. The palms of his hands and his fingers are free from callous spots. They do not look as if the deceased had performed manual labor recently."

"Probably hadn't," declared the captain. "Dock masters don't have to. But, look here. See any calouses on my paw?" As he spoke he spread his huge hands for the others to inspect.

"I guess that's all, Captain," said the detective, "unless there is something else that Dr. Thane would like to ask."

"No, I think Captain Scarsdale has identified the body beyond question. "But," added the scientist, as the mariner rose to go, "of course it would be preferable to secure a confirmatory identification. Do you know of anyone else who could swear the body is that of the man Underdunk?"

"Sure," replied the seaman. "Anyone in the Atlantic Company ought to. There's Captain Atwood. He's superintendent. Why not call him?"

Dr. Thane, highly elated because he found he had come so near hitting the mark in his surmises, and quite convinced that Captain Atwood would confirm the identification, hurried to his office. With scientific fervor, he began building up the details of the crime and criminal as he believed they should be according to psychological reasoning.

To him, now that he was aware of the race, occupation and character of the dead man, the whole matter was clear, and that very day he handed a copy of his findings to his friend, the detective.

"The crime," he wrote, "was not premeditated. The fatal blow was as unexpected and unforeseen to the deceased's companion as to himself. There was no real motive for the crime, at least not enough to warrant homicide. Fright at what had occurred, drove the responsible person to seek refuge in flight, probably to South America.

"In all probability he was at sea before the body was discovered. But in my opinion, he will have an irresistible impulse to return and learn all details of the mystery as known to the authorities. Impulsively as he acted at the time, he will, if I am not greatly mistaken, run true to psychological form and, of his own free will, will tell the entire story regardless of consequences. The dead man's assassin was undoubtedly a Latin-American, or at least, a Latin, with the chances in favor of his having a slight strain of primitive blood—probably Indian. He had been on friendly terms with the deceased up to the

moment of the tragedy, the exact cause of which I do not feel qualified, from the meagre means of deduction at my disposal, to state definitely. But I feel quite confident that it was due to some discussion over property, and by this term I mean wages, money due, or any object, the ownership of which was in dispute. The murderer, however, was not one who would kill for personal gain, and he did not possess himself of the dead man's funds. The wound which produced death was, as has been already determined, made by a blunt, dull instrument not at all adapted to homicidal purposes. It was used without thought, the psychology of the user unconsciously urging him to strike with whatever happened to be in his grasp, exactly, I might say, as a snake might strike, even though it possessed no fangs. As a crime, it is somewhat unusual and presented mysteries not readily solved by ordinary means. As a study in psychology it has proved most interesting. Also, it has afforded me most desirable opportunities for proving my theories, and also for recording the racial peculiarities of the much-mixed natives of Surinam."

Rather pleased with himself, Dr. Thane was preparing to dismiss the case as closed, although still looking forward with anticipation to the day when the murderer would return as he had prophesied.

But he was destined to receive another surprise. Captain Atwood viewed the body and at once declared that it was *not* that of Peter Underdunk.

"No more like Underdunk than I am," he stated. "Underdunk was as gray as a badger and had a heavy mustache."

"But my dear Captain Atwood," protested Dr. Thane, "Captain Scarsdale was equally certain it is the body of Underdunk, and his description of the latter was quite at variance with yours."

"Naturally," explained the Atlantic Company's superintendent. "He hadn't seen Underdunk for six years. A man changes a lot in that time, especially at Underdunk's time of life. But if you doubt me, look on the dead man's shoulder. Underdunk had a peculiar double mole, a sort of dumb-bell-shaped mark."

"Which shoulder?" asked the scientist, as he approached the body.

"Left," replied Captain Atwood. "Close to the collar bone."

Dr. Thane bared the neck and shoulders of the corpse.

"By Judas!" exclaimed the other. "That stab's right where the mole should be."

"Then we are no better off than before," declared Detective Haley. "It's the same old story—one fellow swears it's Underdunk, and the next swears it's not."

"But if Captain Atwood is correct, where is Underdunk?" demanded the scientist, who was loath to admit that the body might be that of some one else, and that his hypothesis had been built on false premises.

"Search me," replied Captain Atwood. "He got through with us three months ago. Said he was going on a vacation. Likely as not he went down to Surinam."

So, once again, the mystery seemed as deep as ever. Dr. Thane insisted the body was that of Underdunk, while the detective declared that there was just as good proof that it was not. And, incredible as it may seem, though the police used every effort

to locate friends or acquaintances of the ex-sailor from Surinam, and found a number of them, yet, like the two sea captains, some vowed it was, and others insisted it was not Underdunk, whose body reposed in the morgue. The presence of the unusual mole appeared to be the only positive means of identification, and that, if it had existed on the dead man, had been utterly destroyed by the blow which had killed him.

Thus matters stood when Dr. Thane was once more summoned by Detective Haley.

As the scientist entered the detective's office, a man who stood with his back toward the door, turned.

And at sight of his face, Dr. Thane, matter-of-fact scientist though he was, felt a strange sensation, a psychological condition absolutely new to him.

There, alive and apparently in excellent health, sat the counterpart of the dead man in the morgue.

"Don't wonder you got a jolt, Doctor," grinned the detective. "I did myself when Mr. Underdunk walked in here."

"Then—then—" stammered the scientist.

"Yep," interrupted the detective. "Captain Scarsdale was wrong. This is the missing Peter Underdunk. He has just arrived from a visit to his native land. Quite alive, as you see. If you doubt his identity he will gladly show you the dumb-bell-shaped mole that Captain Atwood mentioned."

But Dr. Thane did not question the matter. His first surprise over, he realized that after all the living Peter Underdunk was not the perfect double of the dead man. His features, eyes, build and general appearance were the same, and no doubt a few years previously the resemblance would have been more striking. No one could blame Captain Scarsdale for swearing to the identity of the corpse. He had been correct even in his description of the teeth, although Underdunk remarked, as he opened his mouth for the scientist's inspection, there was not much similarity at the time. And Dr. Thane agreed that there was not, for Underdunk's missing molars had been replaced by artificial teeth.

Rather dejected, for all of his assumptions had been utterly knocked to bits by Underdunk's appearance on the scene, Dr. Thane betook himself to his study, almost ready to abandon his fascinating investigations of criminals' psychology.

CHAPTER VI.

Science Triumphant

SEVERAL weeks had passed since Peter Underdunk had so unexpectedly arrived to prove he was not dead, and, incidentally, knock Dr. Thane's carefully built-up report into bits. The corpse, whose identity still remained a secret, had been buried, and the case, as far as the police were concerned, had been relegated to the files of unsolved murders of the great city. Even Dr. Thane had, ostensibly, abandoned his efforts to unravel the mystery, and had turned his attention to other and more strictly scientific matters. But often his mind reverted to the case, and his thoughts were far from pleasant at memory of his failure to prove his pet theories and the good-natured ragging he had received from his friend, Haley.

Several times, in fact, he found himself mentally reviewing all the incidents, features and details of the ash-can murder, and striving to find flaws in his rea-

soning. Of course there was the pre-eminent fact that he had built up his case on the supposition that the corpse had been that of Peter Underdunk; but the scientist could not convince himself that he had tripped up there. He was morally certain that, whoever the murdered man might have been, the crime was Latin-American, as in so many ways it had agreed so perfectly with his hypothetical case. Like most scientific men, he hated to admit that either his theories or his reasoning could be at variance with incontrovertible facts.

His subconscious mind was more or less occupied with such thoughts, although he was apparently giving all his attention to a most interesting collection of specimens from New Guinea, when he was interrupted by the bell of his desk telephone. Somewhat impatient at this interference with his studies, he lifted the receiver from its hook, and instantly was all attention as he recognized the voice of his friend, the detective.

"If you're not too busy, I'd like to have you run over here," said Captain Haley. "And," he added, "even if you *are* busy, I think you'll find it worth your while to drop what you're doing and come over. No," as Dr. Thane attempted to interrogate him, "I'm not giving you any tips over the phone. You'll have to come over to find out."

Curious to know why the detective had summoned him, and knowing Haley would not have called him up unless something highly important was afoot, Dr. Thane put aside his specimens and hurried to the detective's office.

Talking with the detective was a young man, fair-skinned, light-haired, tall and athletic in build, and with face burned red by sun and wind.

Dr. Thane's trained eyes took in every detail of the stranger's appearance at a glance, and, in his pre-eminently scientific mind, instantly identified, classified and labelled the young man as "Pure Nordic."

"I want you to meet Mr. Robert Hayden," exclaimed the detective, as the two turned at the scientist's entrance. "Draw up a chair, Dr. Thane, and let Mr. Hayden clear up the ash-can murder mystery for your benefit."

Dr. Thane gasped. What new development was this and who, he wondered, was this clean-looking young Hayden fellow.

The young man flushed under his sunburn, starting a bit nervously and confused, as if he did not know just how to begin. "Why," he said, "I have just been telling Captain Haley about it, and he wanted you to hear it, too. Of course I realize now I was foolish and shouldn't have gone off as I did. I ought to have told the police as soon as André was killed, and—"

"Pardon me," interrupted the scientist. "You speak of an André. Do you mean that the body found on Eighty-fifth Street was that of a man named André?"

"Yes, André Mission," replied Hayden. "He had some valuable mining properties, placers, and got me interested in them. I—"

"Pardon me for again breaking into your story," said Dr. Thane. "Where were these placer mines situated?"

"In Panama," replied the other.

Dr. Thane, seeing that whatever the solution of the mystery might be, it always pointed toward Latin-America, nodded and smiled.

"I was interested, as I said," continued Hayden, "and I took an option from André. Of course, I wouldn't put much money into the proposition until I'd seen the properties, and I didn't really know anything about him. So—"

"Another question or two, if you do not mind," put in the scientist. "Was this André Mission a native of Panama?"

"No," declared Hayden. "He had lived there; but he came originally from Madagascar. I remember that particularly, because I'd never met anyone from there, and it interested me. You see I'd always thought of Madagascans as negroes, and André was white. He was a queer fellow, too. He used to boast that he was a descendant of some old pirate named Mission, who once established a settlement out there and married a native. He seemed to be rather proud of it."

Dr. Thane was now fairly beaming. No wonder, he thought, the racial status of the dead man had proved so baffling; a mixture of Madagascan and Caucasian, with probably a bit of Arab and Moorish blood in addition. Well, he must make a mental note of that, and, later, endeavor to secure specimens of pure-blooded Madagascans' hair and blood. It would form material for an instructive monograph.

But young Hayden was continuing with his story, and the scientist gave all his attention to it.

"I had the documents," he was saying, "and to celebrate the deal, we started for the Greenfield Inn in my car. It's a roadster, or rather a racer, low and without doors, you know. No," as Dr. Thane started to frame another question, "We were neither of us drunk; hadn't taken a drop. I never drink and André was not a heavy drinker anyway. Well, as we reached that sharp hair-pin curve near Stanwich—perhaps you know the place—where a steep bank slopes to the river and they'd been clearing off the woods, we were talking of the mines and something was said that made André want to show me some new samples he had just received. They were in a paper in his pocket, and he half rose to reach them. Just at that instant a big collie dog jumped into the road, and, without stopping to think, I jammed on the brakes to avoid hitting him. And—God! I hate to think of it, André lost his balance and went hurtling from the car down the bank."

"When I reached him he was lying face down, with his head downhill toward the river, and," Hayden shuddered at the memory, "he was dead. He'd struck the sharp stub of a sapling and it had gone deep into his shoulder. I was so horrified and frightened and upset that I didn't know what to do. My first thought was to get André into the car and drive like mad and notify the police. Then I thought of the position I was in. I had been alone with André. I had an option that had not been paid for in my pocket. And he had been killed by a wound like a stab in the shoulder. Would the police believe my story? Wouldn't it look to them like murder? There was the motive—André's mines; there was no way to prove my story, and, even if I proved it, there would be rumors, suspicions, and I would be mixed up with a police case, and might be held."

"Of course, now I realize how I lost my head and how foolishly I acted. I could have led the police to the stub with André's blood on it, or I might have left him where he was until I called the police. And I had plenty of friends who could testify to

my character and temperament. But I couldn't see anything but a charge of murder and a lot of suspicious circumstances at the time."

"Anyway, I carried André's body to my car and started on, not knowing what to do. Then I saw a house and barn beside the road and drove in, thinking I might find a 'phone or might do something—really I don't know exactly what was on my mind. But there was no one there. Then I saw a piece of burlap, and with that I covered André's body so no one could see him when I drove into town, for by then I'd made up my mind to face the matter. But each minute, as I neared the city and thought of the incredible story I'd have to tell, I grew more and more nervous and frightened. Then, as I was passing through a side street, I saw a man come from a basement door and dump a big bundle into an ash can. I don't know why it should have given me the idea, but it did, and rolling André's body in the burlap, I stopped and put him in a can and drove away. The next morning I was nearly crazy. I realized I had made the case against myself so strong that I was hopelessly lost, and I took the boat that was sailing that day for Colon."

"But I couldn't rest easily. I was haunted, haunted by André's death, and haunted still more for fear some innocent person might be charged with the crime. I watched every paper with fear and trembling, always expecting to see my name, for I felt sure that somebody who knew I had been dealing with André would come forward and tell the police, and I couldn't understand why no one had identified him. I didn't even dare go to the mines and so, when the case quieted down and I realized what a fool I'd been—well, I came back to tell all I knew and to face the music. And here I am."

"And I guess that rather knocks out all your theories, eh, Doctor?" grinned the detective. "Not much like the crime you had doped out."

The scientist, utterly dumbfounded at Hayden's revelations and the totally unexpected yet simple solution of the mystery, sat staring, blinking through his glasses.

Then a smile crossed his features. "In some respects, yes," he admitted. "But I was correct in several details. The man Mission *was* killed by a blunt instrument, and the stroke was not premeditated. Moreover, the dead man's companion fled to South America, as I foresaw, and, as I stated would be the case, he returned and told his story of his own free will. Just read the first few paragraphs of my report, Haley."

The latter drew the document from a pigeon-hole and spread it before him.

"Here it is," he announced. "The crime was not premeditated," he read. "The fatal blow was as unexpected and as unforeseen by the deceased's companion as by himself. There was no real motive for the crime—at least not enough to warrant homicide. Fear of what had occurred drove the responsible party to seek refuge in flight—probably to Latin-America. In all probability he was at sea before the body was discovered. In my opinion, he will return—"

"Yes, yes," exclaimed the detective. "I guess I'll have to take back a little of what I said just now. You seem to have hit the nail on the head in a good

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RICE'S RAY

by Harry Martin



Watching my chance, I dropped a grenade directly into that gaping mouth . . . an instant later there was a muffled explosion, and the beast fell over backward, kicking convulsively.



It had been several years since I had seen my old friend, Fred Wilson, so it was an agreeable surprise when I received his letter asking me to visit him at his home in California. "Dear Harry," it began, "I am hoping you will find it convenient to visit me some time soon, as I have something to show you which will no doubt be of interest, and which you may be able to help me to perfect."

There was no hint as to what he wanted my help for, but as my work with short-wave radio had brought my name into some prominence recently, I surmised that it might be something in that line. Fred and I had been chums in school, and had joined the army on the same day, when we graduated. I joined the signal corps, and Fred had gone into the medical corps, as that was what he was most interested in. I had not seen Fred since we were discharged, but had heard that he was making quite a name for himself in X-ray work.

As soon as I could arrange for a vacation, I started for California, to spend a week with Fred at his home in San Diego. On my arrival, he greeted me warmly, and we spent the greater part of the afternoon talking over old times and explaining what we had been doing since the war.

It seems the navy was interested in attempts to produce a ray that would stop airplane motors at a distance, and Fred had been working with one of the navy experts, but the experiments had not been a success. About a year after the last experiment, Fred had made a discovery that promised success, and it was on this work that he wanted my help.

That evening a tall, slender navy officer called, and was introduced by Fred as Captain Rice. "Captain, this is my old friend, Harry Martin, whom you have heard me mention so often. He is an expert on short-wave radio, and I am sure he will be able to help us solve our problems."

Captain Rice explained that what they were trying to produce was a ray or beam that would act as a conductor of electricity to such an extent that it would short-circuit the ignition system of an airplane engine.

We went into the laboratory, and Fred showed me the machine which they had been working on. It resembled an ordinary X-ray outfit, except that the tube was of unusual size, and the power was supplied by a Tesla coil instead of the ordinary transformer. The tube was so mounted that rays could be focused on a small knob, about the size of a large pin head, which was placed at the focal center of a large metal reflector.

"This knob," Rice explained, "is a compound related to radium, and has the power, when excited by the rays from the tube, of giving off emanations which ionize the air, and these emanations can be focused into a beam by the reflector."

The first experiments, when the tube had been excited by 50-cycle current from a transformer, had given rather poor results, but when Fred had tried

exciting the tube with high frequency from the Tesla coil, the results had been much better.

"Now, Harry," he said, "if you can show us how to supply the tube with still higher frequency current, I believe we will have a weapon that will make this country safe against air attack." Fred's eyes were shining with more interest than I had ever seen him show, and even Captain Rice appeared tense as he waited for my answer.

"What wave length can you produce with your present outfit?" I asked.

"One hundred and forty meters is the lowest we can go and still produce enough current," Rice answered.

"We can do much better than that. I can produce a fairly heavy current at a wave length of one meter, but to get it to operate your tube may be another matter entirely, as the internal capacity of your tube may be so high as to practically short-circuit the current at a frequency of three hundred thousand kilocycles." Their faces showed dismay, but brightened as I added, "We will try it, anyway."

Rice informed me that the navy would pay me well for my time, and would add a handsome bonus if we were successful, but I must promise never to reveal the exact nature of the machine, as it was of great importance to keep the ray exclusively an American weapon. I readily agreed, and offered to return home at once to pack my equipment, so we could get started without unnecessary delay.

Two weeks later, I was back in Fred's laboratory with several large packing cases full of the latest type of short-wave radio equipment.

Several days were required to set up the motor-generator, transformers, rectifiers and filters before I was ready to test the new transmitting tubes which I had brought with me.

The X-ray tube, as I shall continue to call it, although it was not the ordinary X-ray tube, by any means, required a fairly heavy current to operate it, so that it was necessary to use several of the transmitting tubes to supply enough current. It was quite a job to make the tubes work together, but it was finally accomplished, and we were ready for the test.

The ray-projector was pointed out of the window, which overlooked Mission Valley, and was aimed at a tractor which was being used for plowing, on the far side of the valley, about a mile away.

I started the motor-generator, made a few adjustments, and told Fred to go ahead. He switched on the X-ray tube and focused it on the small knob at the center of the reflector. As the knob began to

glow, Rice moved the reflector slightly, and suddenly let out a whoop. "We got it! We got it! He's stopped sure enough!"

We rushed to the window and looked. The tractor had stopped, but had we stopped it? Fred switched off the tubes, and we watched through field glasses to see if the driver would start the tractor again. After cranking several times, he got it started. Fred switched on the tubes again, and almost instantly the tractor stopped.

"Shut it off, Fred," called Rice. "It works, and

OUR readers will welcome, without doubt, this highly interesting and imaginative story. Little is known about the planet Venus and the science contained in this story, as far as scientific knowledge is concerned, seems to be correct in all its phases. That such situations as our author relates might probably be found on that planet today seems very reasonable. So far, science has not been able to penetrate the thick vapory mist that seems to surround Venus and it is thought that conditions there today parallel those of the earth long before human beings had appeared on this planet.

it's no use bothering him any more. Besides, we are not sure the ray won't injure the driver. You know how the X-ray can burn flesh; this may be just as dangerous."

"I don't think this is dangerous," said Fred, as he switched off the tubes, "but we had better make tests on my rabbits to be sure. Our first tests with the old Tesla coil outfit did not injure a rabbit, but we have a lot more power now."

Rice went out in the yard, and soon came back with a rabbit in a box. Setting the box on the floor, he tilted the projector until it pointed directly at the rabbit. "All right, fellows, do your worst."

When the tubes were turned on, the soft violet glow made the rabbit's eyes shine with a weird light, but, so far as we could tell, the ray did not cause the rabbit any distress.

"While we let the rabbit test our ray, I am going to run a wire out to the garage and connect it to a copper plate on the door; then by focusing the ray on the plate, we can see how good a conductor the ray really is." Rice started unrolling a coil of wire as he spoke.

I got his idea, and brought out the Wheatstone bridge and connected it to Rice's wire and to the tripod that the reflector was mounted on.

When Rice came back, he swung the projector around to the garage door. I pressed the button on the bridge set, and the galvanometer pointer swung over. "We've got a circuit, all right. Now we will see what the resistance is."

After carefully balancing the bridge, I found the resistance to read 2.03 ohms. Looking up the resistance of number 20 copper wire, I found it to be 10.15 ohms per thousand feet, and as we had just 200 feet of wire in the circuit from the reflector to the plate on the garage door, our resistance reading was just right for the wire, but there was no surplus for the ray.

Rice and I were surprised, as we expected the ray to have at least a measurable resistance, but even after a careful check-up, we could not detect any resistance in the ray. It was a perfect conductor.

Fred remarked that we would have to be careful not to point the ray at a trolley wire or power line, or we might get electrocuted. "That's no joke, old man, we probably would," said Rice.

That evening we sat up 'till 'way after midnight, talking over the possibilities of the ray, and the more we talked, the greater the thing seemed. I suggested some changes that could be made in the tube which would reduce the internal capacity, and probably reduce the amount of power required.

The only thing we needed now to assure us complete success, was a test of an airplane in flight, and Rice said he had arranged for that for the next day.

THE next morning was foggy, but Rice phoned from the aviation field at North Island that he would go up as soon as the fog cleared. He would circle over the island at 10,000 feet, and we were to watch for him, and when he notified us that he had reached 10,000 feet, we were to try to bring him down.

It was two o'clock before the fog was all gone, but we found Rice was already in the air, and almost 10,000 feet high.

Fred had everything ready, and as soon as I heard the Captain's voice on the radio saying, "Go to it,

fellows, do your worst," I dropped the receivers and ran into the laboratory.

"There he is," Fred pointed to a speck in the sky almost in line with the sun. It was hard to see at first, because of the sun's glare, but I finally located the plane.

We started up the motor generators, and as Fred adjusted the tubes, I aimed the reflector at that speck in the sky. Watching through the field glasses, I saw the plane go into a dive, and I rushed back to the radio to hear what Rice had to report.

In a few minutes I heard the Captain's voice. "It's O. K., fellows. The motor quit when the ray hit me, but I got it started again when I dived out of line."

Just then there was a crash in the laboratory, and a startled exclamation from Fred. Fearing he had been hurt, I dashed back to the laboratory, and found him looking ruefully at the smashed window through which the reflector had been pointing. The reflector was no place in sight.

"What the deuce happened, Fred?"

"Darned if I know, except that the darned reflector jumped out the window. There it is, on the lawn." I looked out, and there lay the reflector, rather battered, but still recognizable. We looked at each other in astonishment, then both started for the stairs.

The reflector must have struck the window with great force, for when we brought it back to the laboratory we found the heavy copper was badly bent.

"I don't understand it," said Fred. "I was standing at the switchboard, and the reflector was just as you left it; then suddenly it jumped out the window."

We talked over the matter while we waited for Rice to return but we could not think of any satisfactory explanation of the reflector's queer action. No one was near the reflector. It was mounted on a substantial tripod, and there were no wires that anyone could have tripped over and so jerked the reflector. So far as we could see, nothing could have moved it, yet something had moved it with great violence.

When Rice got back, we took him to the laboratory, showed him the battered reflector and the wrecked window, and told him exactly what had happened. He was as surprised as we had been, but was convinced that there must be some logical explanation.

When Fred mentioned the difficulty we had in locating the plane, because it was so nearly in line with the sun, Rice interrupted, "Possibly the sun had something to do with it."

We looked at him to see if he was joking.

"I mean it, fellows. We have a ray that is entirely new to us, and it may have properties that we have never suspected. While the ray was on, the earth may have rotated just enough to bring it in line with the sun, and as we know the ray is practically a perfect conductor of electricity, it is possible that some electrical force from the sun caused the reflector to be jerked through the window."

"But what made it drop in front of the house, if the sun attracted it?" I confess it didn't sound reasonable to me.

"That's easy," answered Rice. "When the reflector moved, the knob of active material was no longer energized by the rays from Fred's tube, and naturally it ceased to function. When the emanations from the knob stopped, the attracting force had to

stop also, as there was no longer any ray for it to travel on."

"You win. I don't think the rays from this machine are powerful enough to reach the sun, but until we test it out, I guess your explanation is as good as any. Fred and I haven't been able to think of a better one, anyway."

Rice seemed quite anxious to try out his idea.

"It's too late to try it on the sun today, as it is almost sunset now, but we might try it on the moon this evening," said Fred. "We have another reflector that we can use, by changing the knob from the damaged one. Let's hope the moon won't be quite as violent as the sun," he added with a grin.

That evening we went up to the laboratory and opened the east window, as Fred said he didn't want any more windows broken if the reflector tried any more acrobatics.

The moon was just rising over the mountains in the east, as we finished getting everything in working order, and we soon had the ray pointing straight at it. The ray made a shaft of soft violet light that was easily visible in the dusk. We waited about ten minutes, keeping the ray directly on the moon, but nothing happened.

Rice was rather disappointed, but suggested that due to the moon being so much smaller than the earth, the attraction, if there was any, might not be enough to move the reflector unless we suspended it so it could swing freely.

It did not take long to suspend the reflector from the ceiling by means of some screw-eyes and a piece of cord, the tubes being switched off, of course, while we were fixing the attachments.

I made a mark on the floor just even with one of the tripod legs. Fred switched on the tubes, and almost instantly the reflector and tripod swung to the east. The tripod leg was now several inches east of the mark I had made on the floor.

Rice carefully measured the distance the reflector had moved, then asked Fred to switch off the tubes. The reflector promptly swung back to its original position.

"Well, fellows, it looks as though we have discovered something new," said Rice. "I am going to do some studying tonight, and in the morning we will have another shot at the sun, but this time we will anchor the reflector so it won't get away."

Rice seemed well satisfied with the test on the moon, but I didn't feel any wiser than before, and I don't think Fred knew any more about it than I did.

About ten o'clock the next day Captain Rice arrived with several boxes in his car. These boxes, which we helped carry to the laboratory, contained ropes, pulleys and a large spring scale which would weigh articles up to 500 pounds.

We attached the ropes to the projector, and led them through pulleys which were screwed to the floor, and finally fastened them to the spring balance in such a way that a pull on the projector would be registered on the spring balance.

When everything was adjusted to Rice's satisfaction, we started the motor-generators, and, at Rice's request, I adjusted the voltage to the lowest point at which the tubes would operate. After aiming the projector at the sun, Rice took his place at the spring balance, and told me to start very slowly.

As I gradually increased the voltage, I called out the voltmeter readings, and when I reached 2,600

volts, the ropes were taut as fiddle strings. At 3,000 volts Rice said "Stop, it's no use to increase the power. There was no increase in the pull on the projector after you reached 2,600 volts."

Rice now called us to see how the scale reading checked with the calculations he had made the night before. He smiled at our surprise at how closely his calculations checked with the scale.

"Well, Captain, you will have to explain. Harry and I are still in the dark," Fred said.

"Shut the set off, and I will explain my theory, which I think is proven by this experiment. You remember Newton's Law of Gravitation states that every particle of matter in the universe attracts every other particle with a force directly proportional to the mass, and inversely as the square of the distance. Well, our ray seems to act as a conductor of gravitation, so the force, instead of being inversely proportional to the square of the distance, is almost as great as if the distance did not exist. You know the mass of the sun is so much greater than the mass of the earth that an object would weigh a great deal more on the sun than it does on earth. Well, our ray conducts this force so that the projector is attracted to the sun with almost the same pull that it would be attracted by gravity if it were at the surface of the luminary."

"What use can be made of this property of the ray, if you think it will be of any use, Captain?"

"Every new discovery will be useful sometime. We will find a use for this one, and I think I know what it will be, but I prefer to do some more studying before I start to prophesy."

THE foregoing rather dry account of the experiments that led to the discovery of the strange powers of the ray is necessary to explain how I became involved in one of the strangest adventures that man ever undertook.

More than a year after the ray had been turned over to the navy, I was again invited to spend my vacation with my two friends, and to inspect the machine on which they had been working.

On my arrival to Fred's house, I found Fred and the Captain eagerly waiting for me. "Leave your grip in the hall and hop into the car. We just have time to make it, if we hurry." Fred was in such a rush that he didn't even stop to shake hands, but hustled me into the car, and started for the back country at once.

In answer to all my queries, Rice said, "Wait and see."

After about forty minutes of fast driving, we turned into a prosperous looking ranch which Rice said he had purchased when he left the naval service, shortly after the work on the ray was done.

We left the car and I followed my friends into a large, barn-like structure, and got my first sight of the machine that they had been working on for nearly a year. It was some kind of an aircraft, I judged, but different from any I had ever seen before.

The hull of the machine was made of metal and in shape resembled a submarine. The landing wheels, and the propeller at the front, and the horizontal and vertical rudders at the stern, which were obviously for use in the air, suggested its being an airplane. There were no wings, and if I had not suspected that the peculiar powers of Rice's ray were used to lift

the machine, I would have mistaken it for a submarine instead of an airship.

A round door, or hatch, in the side of the ship was opened, and I saw that the hull was made of two sheets of metal, with a space of about two inches between them. The door fit closely, and had a rubber gasket around the edge. On entering the ship, I found the center compartment equipped as a comfortable cabin, with easy chairs, a table, and folding bunks like Pullman berths. There was a door at each end, leading to two other compartments, one in each end of the ship.

After a brief look around, Fred had entered the forward compartment, and on following him, I found it to be the navigating room. There was a switchboard, with motor generator sets back of it, and at the top of the hull there was a sort of conning tower, from which the navigator could see in all directions and control the ship from a small keyboard in front of him.

Hearing a noise outside, I glanced out of one of the portholes, which were covered with double thicknesses of glass, and saw Rice turning a crank which caused the roof of the hangar to open up like the lid of a box. As soon as the roof was open, he entered the ship and closed the hatch. Fred, in the meanwhile, had been busy starting the motor generators, and paid no attention to my questions except to tell me to "keep my shirt on and quit bothering him when he was busy."

When Rice came in, he glanced at the chronometer on the switchboard, which showed three minutes of twelve, then turned to me with a smile and remarked, "If you can contain your curiosity for a few minutes more we will answer all your questions, but we will have to hurry now, for I want to start at exactly noon."

I had enough confidence in my two friends to believe that they would not ask me to go with them if the ship had not been tested and proved safe, so I stood back and watched while they adjusted switches and rheostats. At exactly twelve o'clock, Rice pressed a switch, and at once I felt the ship sway, and then start up like an express elevator. It did not move forward like an airplane, but rose vertically, as I could see by looking through the window in the floor.

As we rose rapidly, the area which could be seen from the window enlarged until I could see from the mountains on the east, to the sea on the west with the city and harbor of San Diego spread out like a map below us. It was a picture of such beauty that, if ever seen, it could never be forgotten. For some time I was so interested in the view from the window that I could not tear myself from it, even when Fred tapped me on the shoulder and said, "Come on, old man, and look the ship over; you will see enough of the earth before we get back."

The main cabin of the ship was in the center, and as I said before, was fitted up as comfortable living quarters. In addition to the chairs, table and bunks, there were several lockers which contained books, instruments, and weapons.

The rear compartment seemed to be mainly a storeroom. It contained a number of tanks which Fred said contained compressed oxygen for breathing, sufficient for a long trip. There were also chemicals for absorbing the carbon dioxide exhaled by the breath, so the air would remain fresh for a

long time. At one side there was a small electric range, and near it was what seemed to be a small refrigerator. The back of this refrigerator was formed by the outer plates of the hull, and Fred said that the cold of high altitudes or of inter-planetary space could keep the contents below freezing. On the other side of the room, there was a large water tank and near it a sort of box which Fred told me was an air lock through which garbage and waste of any kind could be ejected from the ship by means of compressed air.

"Now come and have a look at the engine room," said Fred, as he led the way to the front of the ship. This room contained the motor-generators, a switchboard, and at the top of the hull, the conning-tower, which projected a little above the top of the ship. There was a large motor in the nose of the ship to supply power to the propeller, which Fred said was only needed when landing, and only then, if the wind was bad.

I looked all around for a ray projector, but not seeing any, finally asked where they were. Rice, who had just left the conning-tower, answered me.

"The ray projectors, of which there are twelve, are mounted in hemispherical recesses in the hull of the ship, but I suppose you did not notice them, as we were in such a hurry to get started. Although the projectors are outside the hull, they can be swung in any direction from the control board in the conning-tower. We installed twelve projectors, so if any of them fail, we are still able to navigate safely. The motor-generators are also in duplicate, so there is no danger of our power failing as long as the storage batteries hold out."

"By the way, where are the batteries, I haven't seen them yet?"

"Oh, they are under the deck. You see, there is quite a space between the deck and the bottom of the hull, and this space is nearly all occupied by the storage batteries."

"Well, you certainly have a wonderful ship. I suppose it belongs to the navy, doesn't it?"

"No, it belongs to Fred and myself. The navy department was not interested in the ray except as a defense against airplanes, and when I explained how the ray could be used for lifting aircraft, they said such a ship could not rise except when the sun was directly overhead, and aircraft which could not operate at night was useless for military purposes. When I realized that they would do nothing with it, I asked for two years' leave to experiment on my own, and Fred and I built this ship at our private expense."

"Harry," said Fred, "we want you to see the ship, and what it can do; then, if you are willing, we want you to go with us on a real trip."

"I'll go to the moon with you if you say so," I laughed.

"It is a longer trip than that," Rice put in.

"Yes," said Fred, "it's longer than that. In fact, we have already made a trip to the moon, and we are planning to go to Venus, if you will come with us."

"Do you honestly mean that?" I gasped.

"We certainly do," they both answered at once.

"But can the ship really be controlled after you get outside the earth's atmosphere?"

"Oh, yes; we need merely to point one of the ray projectors at some heavenly body that is large enough and is in the right location to pull us which-

ever way we want to go. So far as the earth's atmosphere is concerned, we are beyond that now, and you see the ship is still behaving all right."

This last statement seemed so unbelievable—for we had only been up about an hour—that I looked through the window in the deck to make sure Rice was not joking.

There was an enormous distance below us, so far, in fact, that the rounded shape of the earth could be noticed, instead of the flat appearance that it has when seen from an airplane. When I looked out of one of the side ports, the sky appeared to be made of black velvet, spangled with countless stars of much greater brilliance than I had ever seen before.

"I guess I'll have to believe you fellows, but it doesn't seem possible to have reached such a height in so short a time. How high are we?" I inquired.

RICE looked through the telescope, did some figuring on a pad, and announced that we were about 1,200 miles above the earth. "I increased our speed as soon as we were above the dense part of the atmosphere, but we are almost high enough, so we may as well slow down a bit." He adjusted a rheostat, but I could not detect any change in the motion of the ship. In fact, there had never been any noticeable motion except in starting, when there was the same sensation as when an elevator starts up suddenly.

"Where are we going this trip," I wanted to know.

"Oh, just a little jaunt around the world," Fred answered with a grin. "It will only take twenty-four hours, for we will just hang here in space and let the world turn around under us."

"Did you fellows really make a trip to the moon in this ship, or were you just kidding me?"

"We really made the trip," Rice answered. "We did not land, as there is no atmosphere on the moon, but we could see more from a moderate elevation than we could have seen had we landed."

Fred had gone to one of the lockers, and came back with a bunch of pictures.

"Here, old man, take a look at these if you want to see what the moon is like."

The first picture, marked 10,000 miles, showed the moon very much the same as I had seen it through the big telescope at Lick Observatory. The second, marked 2,000 miles, showed the craters very distinctly, with the radial lines running out from them appearing dark, as though they were cracks in the surface of the moon. The next three pictures, taken from much lower elevation, showed that these lines were not cracks, but ridges of dark rock, like lava which had splashed from the craters, like mud when you drop a stone into it. There were several other pictures taken from only about a thousand feet. These proved there was no trace of vegetation or water. It was simply barren, rugged mountains, or flat plains which looked like some of the dry lake beds to be seen in the deserts of Utah. The great contrast between the sunlight and the black shadows proved there was no atmosphere to diffuse the light and soften the shadows.

"Did you find out whether the craters were volcanic, or whether they were formed by the impact of meteors, as some astronomers think?"

"Well, we don't know much more about it than the astronomers. The ejected material looks like lava, and the fact that the craters of the moon are

so much larger than those of the earth, is what might be expected when the difference in the force of gravity on the earth and on the moon is considered. As the lava would be so much lighter on the moon, the same amount of volcanic energy would produce a much larger crater on the moon than it would on earth. Of course, that is only my own opinion, and it is true that the impact of meteors might have caused the craters, but they looked like extinct volcanoes to me."

Fred, who had been busy in the storeroom while Rice and I were talking, now called for us to "come and get it," and we found he had a good meal of coffee and warmed-up canned goods ready. We were hungry, for it was almost two o'clock, and we were quick to respond to Fred's invitation to help ourselves.

While we were eating, we discussed our plans for the trip to Venus, for I had already made up my mind to go. Fred and I would have been willing to go to Mars, but Rice said Venus was best, because it is nearer, and also was more likely to be habitable. "You might find Mars unsuitable for habitation because of lack of air," he said. "The telescope shows the surface markings so clearly that there is evidently very little air to diffuse the light, while Venus must have plenty of air, as it is very difficult to actually see the surface of the planet, because of the clouds. Another reason for making the trip to Venus instead of Mars," he continued, "is the distance. Venus, when nearest the earth, is about 26,000,000 miles away, while Mars, at the most favorable point, is 35,000,000 miles away. We don't want to start on a longer trip than our supply of oxygen is good for."

"How long will it take to reach Venus?" I asked.

"A little more than a week, as nearly as I can figure it out, and about twice as long to return. We can use the attraction of the sun when we go to Venus, but we will have to fight it to get back."

"There is only one more thing that I am doubtful about—the cold of inter-stellar space. Will the ship remain warm, or will we suffer from the cold, as most aviators do who attempt to reach high altitudes?"

"Don't worry about that, Harry," Fred put in. "The space between the inner and outer plates of the hull is pumped to as nearly a perfect vacuum as we could get, and you know how a thermos bottle holds heat. The ship is simply a big thermos bottle, and although we are in inter-stellar space at present, the temperature in here is comfortable and there is no frost even on the windows."

"Well, it looks as though you have provided for everything, and I don't see any reason why the trip cannot be made, provided the batteries will supply power enough," I said.

"The batteries will be good for three months at full power," Rice answered. "You remember we followed your suggestions for improving the tubes by reducing the internal capacity, and as a result, the efficiency was increased so much that 200 watts now give us as much available power as we got from three kilowatts before. That gives us a much greater cruising radius with the same size batteries."

"Well, if we get back to San Diego safely, I am going to go to Venus with you even though we may never get back to earth." We shook hands on that, and then Rice and I went back to the window, while Fred cleaned up the lunch dishes.

Rice pointed out Hawaii, far to the southeast, for we were almost over Japan by this time. The east coast of Asia, the islands almost as far south as Australia and as far north as Siberia, were spread out below us like an enormous map. The weather was clear over most of the area which was visible, so we could see very well. We were now more than 2,000 miles above the earth, so we could see an area about 45 degrees in diameter. With the telescope, cities and towns were plainly visible, but with the unaided eye, it was like looking at a remarkably good map. One peculiar thing that I noticed was that it was difficult to tell where the sea ended and the land began, as from our elevation we could see the bottom of the sea, even where it must have been rather deep, and the shallow water near shore was almost invisible.

Captain Rice, in his service in the navy, had seen a good bit of the world, so he was able to tell us many interesting things about the places that Fred and I were now seeing for the first time.

The world seemed so much like a map that I almost expected the countries to have different colors, as they do in geographies. But the general color was a rather dirty green, so we could only locate the different countries by the shape of the coastline and by bodies of water such as the Caspian, Black and Mediterranean Seas. Arabia alone, was the color given it on the map—a pale yellow, probably due to the desert sand.

It was a strange experience, and so interesting that Rice and I did not notice the passage of time, but Fred, who has a habit of getting hungry at frequent intervals, reminded us that it was time for another meal.

The electric range provided us with a good, hot meal, which we all enjoyed. By the time the meal was over, we were nearing the Atlantic Ocean, and could see most of France and Spain, as well as northern Africa, but the weather was cloudy over the greater part of Europe. A dazzling white blanket of clouds covered all of England and Germany.

While crossing the Atlantic Ocean, Rice let the ship drop down until we were at an altitude of about 800 miles, when we reached the east coast of the United States at the latitude of Savannah, Georgia. Rice checked our position frequently while crossing the United States, and continued to reduce our altitude gradually, so when we crossed the Colorado River we were only about fifty miles up. We remained at that altitude until we hovered over California, when Rice again let the ship sink gradually downward.

After entering the atmosphere, as we were a little to the south of San Diego, the propeller was started and the ship headed northwest. In a short time the ranch was sighted and we headed for it. We soon landed lightly about 50 yards from the hangar.

When we had landed, Rice glanced at his watch and announced that it was one minute after twelve. We had circled the globe in 24 hours, 1 minute. "Beats Jules Verne's 'Tour of the World in Eighty Days,' doesn't it?" he remarked with a grin.

It was not safe to try to enter the hangar from the top, as we had left it, so the ship was towed into the hangar through the large double doors at one end. Although the ship weighs 85 tons, a tractor pulled it with ease, as the ground was level.

THE next week was a busy one for all of us. We had to decide what supplies and equipment would be necessary and what we could get along without, as our space was limited.

Rice thought the climate of Venus would be warmer than that of the earth, so we all laid in a supply of light clothing suitable for a tropical climate.

It was difficult to decide what weapons to take. Finally we settled on a pair of Springfield rifles, a 12-gage shotgun and a heavy Winchester sporting rifle that Rice had used to hunt Alaskan brown bear. Fred said he could not hit anything with a rifle, but could do good work with a shotgun, and insisted on taking it, although we told him a rifle would be safer if there were any dangerous beasts. Rice also provided us with a case of Mill's grenades, which he got from the navy. We were all familiar with the use of grenades, and knew that they might be very useful.

The oxygen tanks were filled to capacity, the storage batteries charged and inspected, and the entire ship gone over carefully, to make sure that everything was in perfect shape.

We waited two more days before starting, as Rice wanted to make the trip when Venus would be nearest the earth. By starting about a week before the planet would be at inferior conjunction, we could head for the sun, cross the path of the planet, then descend on the daylight side.

Our supplies were sufficient for six months. We had enough oxygen to spend half of that time in the ship, and as Rice did not think the round trip would require more than a month, we felt that there was not much chance of running short.

By noon of the great day the strain of waiting had made us all rather nervous, so it was a relief when Rice finally closed the switch that started us on the longest journey that had ever been undertaken by man.

The start was made without trouble, and the speed raised to as high a point as the resistance of the atmosphere would permit. As soon as we were outside the atmosphere, Rice put on full power, and the earth began to drop away rapidly.

There is a saying among prospectors that when one eats a sack of flour with a man, he knows him. I would say, if you want to know a man, just be shut up in a small ship with him for a week, and you will know him. At any rate, the three of us got to be better friends on that trip, than we could have become in years of ordinary life.

Fred Wilson was just the same old Fred that I had always known. Rather slow in some ways, but always reliable. Captain Rice, somewhat older than Fred or myself, had always seemed a very well-informed man, but our talks during that week showed a wealth of information that I had never suspected.

Fred and I always called each other by our first names, but there was a certain dignity about Captain Rice that made us think of him as "Rice," or "the Captain." I do not mean that he was stiff or stand-off-ish, but although he was a good sport and a fine comrade, still there was a reserve that unconsciously impressed us.

As there was no difference between day and night, after we left the earth, we regulated our days by the clock and took regular watches, so there would be one of us on duty at all times.

I soon learned how to handle the ship, but it required no attention other than hourly tests of the air, to see that the oxygen was feeding at the proper rate and that the chemicals for absorbing the carbon dioxide were working properly. The motor-generators were larger than necessary, so they did not heat, and needed no care.

Whenever Rice came on watch, he calculated our position and average speed for the day. I was much interested in the instruments for determining our distance from the earth, and asked him to explain them.

"Well," he replied, "you have no doubt noticed the scale etched on the lens of this telescope. It is the same as the range-finding field glasses used in the service, and you have probably used them, when you were in the army."

"I have seen range-finding glasses, but never knew just how they worked," I answered.

"The divisions of the scale etched on the lens are called mils, and are a means of measuring angles. A mil of this kind is the angle at the apex of a triangle, the base of which is one one-thousandth part of its altitude. When you look through this telescope at an object of known size, you will read its diameter in mils, just as you would measure it with a ruler; then its diameter in feet or miles is multiplied by 1,000, and divided by its diameter in mils. An astronomer measures the distance of the planets by determining the parallax, and this is what the telescope scale enables us to do in a simple way. The measurements with the telescope are not reliable beyond a rather short distance, so we have other means of determining our position."

Rice went to one of the lockers and took out an instrument, which he brought over to the table.

This instrument had a box-like base, with an upright standard, from which a pendulum was suspended. There was a scale at the bottom, over which the pointer on the pendulum could move.

"This base," Rice explained, "contains a magnet which attracts the pendulum, and would cause the pointer to remain at the center of the scale, but when the instrument is placed so that the scale lines with some planet, the force of gravitation will cause the pendulum to swing to one side. When we reach a position where the attraction of the earth on one side, and Venus and the sun on the other, exactly balance, the pointer will remain at the center of the scale; but as we pass that point, the pointer will swing to one side. By calculating the pull required to deflect the pendulum, we can discover our distance from the attracting body. The advantage of this instrument is that it will give us our position when we are beyond the range of accurate measurements with the telescope. At about 8,000,000 miles the parallax of the earth becomes too small to be accurately measured with the telescope, so we have to depend on this instrument and on observations of the positions of stars and planets."

"It is very interesting, Captain, but I am afraid it is too deep for me."

Rice smiled as he put the instruments away. "It is no more complicated than many of the calculations required in ordinary navigation, or in some of your radar work."

"You noticed the magnet for pulling the pendulum to the center of the scale when we are at the neutral point of gravitation. Well, when we reach that point,

we will have to wear magnetic shoes to hold us to the steel deck, or we will not be able to walk about the ship." Rice smiled again at my astonished expression. That was another thing I had not thought of.

The days passed uneventfully, and were mostly spent in observations of the heavens. The earth, though rapidly diminishing in apparent size, was still the most magnificent object in the heavens. It greatly exceeded in magnitude and brilliance any planet that can be seen from the earth.

We were making a little better speed than Rice had calculated, so we expected to reach the orbit of Venus on the fifth day. That pleased Rice, as it would give us a good chance to pass the planet, and then observe it from the daylight side before landing. So far, it had been difficult to observe it, as the dark side was next to us and we could only see a slender crescent of light like the new moon. On the fifth day, however, this crescent increased in size and brilliance until it was dazzling.

TWELVE hours before we reached the orbit of Venus, Rice switched off the projector that had been pulling us and switched on the earth's attraction, to act as a brake and slow us down. The ship was traveling at such terrific speed by this time that even with the earth's pull, holding us back, we shot past the orbit of Venus more than 100,000 miles before our momentum was expended.

The planet, as seen from the sunward side, now presented a spectacle of such dazzling brightness that it was necessary to view it through dark glasses. The planet was wrapped in clouds, and it was only during brief intervals that we could see its surface.

The few holes in the clouds did not show us much of value. Most of the surface that we saw was water. There is a polar ice cap, but it probably melts during the summer.

Rice calculated the inclination of the planet's axis to be 42 degrees, and its time of rotation about 23 hours.

One of the holes in the clouds had afforded us a brief sight of land in the north temperate zone, and as it would now be spring in that latitude, we decided to land there. The thick clouds might make landing dangerous, so we dropped down very slowly after we entered the atmosphere.

When we had reached an altitude where the atmosphere was fairly dense, Rice stopped the ship and we took a sample of the air by means of a valve arranged for that purpose. Fred analyzed this sample, and found it to be much like the air of the earth. The percentage of oxygen was a little higher, but not enough to bother our lungs. It was a relief to know that the air was breathable, and when the barometer showed the pressure to be about 20 inches, we opened the hatch.

When the hatch was opened, the air smelled fresh, but heavily laden with moisture, which fogged the windows of the ship so that Rice could not see from the conning-tower. Because of this, Fred and I had to keep watch from the hatch to warn Rice when we were near ground.

Suddenly, almost close enough to touch, a wall of rock loomed up at the side of the ship. At our startled shout, Rice shot the ship upward until we were safe.

Because the mist prevented our seeing the ground

until we were dangerously close, I tied a wrench to a line and lowered it from the hatch. As the line was 200 feet long, it could give us ample warning.

Once more we descended slowly, and when the wrench touched ground, reduced our speed until we were drifting down as lightly as a feather. The ship landed easily on a fairly level surface of solid rock at 3.45 a.m., earth time, just five days, fifteen hours and forty-five minutes after we left the earth.

We all scrambled out of the ship, Fred being the first to touch foot to the soil of Venus. The thrill of being the first men to reach a new world was one that I had never expected to experience, but as Fred remarked, it was too much like discovering a Turkish bath to be comfortable.

The temperature was 92 degrees, and the air was so steamy that we could only see about twenty feet ahead of us. This was a disappointment. We were anxious to explore this new world, but unless this mist cleared we would not dare go far from the ship, for fear that we might not be able to find our way back.

I soon discovered that the ship had landed about fifty feet from the edge of a cliff. From the depths below could be heard the sound of running water and noises of some living thing moving through the leaves. We decided that if there were animals around, we had better stay near the ship until the mist lifted a little.

While we were waiting for the mist to clear somewhat, Fred remarked that it was a lucky thing that the ray could pass through clouds, as otherwise we would not have dared to enter Venus' atmosphere. His remark gave me a rather unpleasant shock. I had never thought what might have happened if the clouds had cut off the ray and let the ship drop. My friends had foreseen the possible danger, and had found by experiment that the ray could pass through clouds as easily as the X-ray passes through flesh.

In about half an hour the mist lifted, and from the edge of the cliff we could see that a wide valley lay about fifty feet below us. It was covered with dense vegetation resembling ferns, some of them thirty feet high. Animals were evidently numerous, but all we could see was the waving of the ferns where they were feeding, and occasionally brief glimpses of dark objects moving through the foliage.

Fred finally saw what looked like a deer, and we decided to try a shot, in the hope of getting a supply of venison. Rice, being a good shot, fired with his Springfield and brought down the animal.

Knowing that it would be difficult to carry the game up the cliff, I remained at the top of the cliff with a rope, to pull it up, while Rice and Fred climbed down to dress the animal.

The sound of the shot had not disturbed the animals much, but I kept a close watch on my friends, so as to warn them if any dangerous beast appeared to dispute the prey with them.

They soon dressed the animal, which seemed to be a species of antelope, and had started back to the foot of the cliff with it when there was a snarling roar behind them and an enormous, tiger-like beast bounded after them from a clump of ferns.

Rice and I both fired, but the bullets from our Springfields did not even stagger the beast. Fred had only his shotgun, so it was up to Rice and me to stop the brute. When Rice's rifle was empty, he and

Fred ran for the cliff, Rice trying to reload as he ran.

As Rice had his eyes on his gun, he could not watch his footing, and suddenly stumbled and fell heavily. My heart seemed to come up into my mouth, for, to make matters worse, my rifle was now empty.

I thought Rice was as good as dead, but Fred had seen him fall, and whirled around. The beast was almost within leaping distance of them when Fred gave him both barrels right in the face.

At the double roar of Fred's shotgun, the beast stopped as if he had struck a stone wall, and began frantically pawing at his eyes. The double load of shot had blinded him. That gave me time to slip another clip in my rifle, and, aiming carefully, I put a bullet through the tiger's brain.

Scrambling down the cliff, I joined my friends, who were both rather shaky from the close call they had just had. We inspected the dead beast, which Rice said was a saber-tooth tiger. "There were fellows like him on the earth thousands of years ago," he added.

I complimented Fred on his coolness in holding his fire until he could blind the beast.

"It was more dumb luck than anything else," he answered. "I told you the shotgun might come in handy, but I didn't expect to use it on a brute like that."

The tiger was a magnificent animal, and probably weighed at least 1,500 pounds. The coat was a dark brown, mottled with spots of jet black. Fred said it would make a beautiful rug.

I didn't want to bother skinning the tiger, but Fred wanted that skin. "He darn near scared me to death, and I want his hide to brag about when we get home," he said.

We set to work at the skinning, and a hard, sweaty job we found it. To make things worse, the fresh blood had attracted countless insects that bit, stung, and buzzed around our eyes in a perfectly maddening manner.

The tiger was not half skinned when the tormenting insects became unendurable. Fred dropped the leg he was working on and said, "Come on, fellows, let's get back to the ship before these darned bugs eat us alive. Let the hide go, it is not worth fighting bugs for any longer."

We were quite ready to drop the job; in fact, Rice and I had stuck to it as long as we did because Fred wanted that hide so badly. I took time to cut a ham from the antelope, sufficient only for supper, as meat would spoil over night in this climate.

IT was a relief to be back to the ship and get the hatch closed to keep out the insects. Closing the hatch made it necessary to use oxygen, which we wanted to save, but unfortunately we had not thought of bringing any screens along.

We washed the blood off our hands and changed into fresh clothes, as we were soaked to the skin with sweat and moisture that had dripped from the ferns. After a good meal of fried venison, we began to feel better, although our insect bites still burned and itched.

We went to bed early that evening, for we wanted to get an early start next morning, to explore as much of this new world as possible. Shortly after we turned in there was a terrific clap of thunder, and then the rain started. I got up, shut off the

oxygen, and opened the hatch, as the rain would keep the insects out. I never before saw it rain so hard. The thunder and lightning were continuous, and the rain came down in sheets.

None of us slept much that night because of the heat and humidity. As soon as daylight appeared, I got up, stripped, and stepped out into the rain. It was warm, but refreshing, and the others soon followed my example. We frolicked about in the rain like three kids, then rubbed down and dressed, feeling much refreshed.

Over the breakfast table, we made our plans for the day.

At Rice's suggestion, I loaded my Springfield with cartridges carrying 220-grain, soft-nose bullets, instead of the military cartridges that we had used the day before. Our experience with the tiger had shown that the 150-grain, pointed military bullet was not powerful enough for the kind of beasts we might meet. Rice took his heavy Winchester, and we wanted Fred to take the other Springfield, but he stuck to the shotgun, and after its effect on the tiger, we could not insist. Also, I stuck a couple of Mill's grenades in my pocket. I thought they might frighten off animals which we might not be able to stop with our rifles.

We checked our directions with the compass, which seemed to work just as well here as on earth, and we started up the valley, keeping to the top of the cliff, so as to be able to see farther.

After the rain, the valley was nothing but a swamp, with a large river running through the center.

We could see several large animals near the river, but the steamy atmosphere made it difficult to make out just what they were at such a distance.

Flowers, which seemed to be of the orchid family, were growing everywhere, hanging from the tree ferns, festooning the branches and covering the ground. Fred plucked a particularly gorgeous purple and gold bloom and held it up for our admiration. Rice and I both laughed, though, when he smelled it. The expression of horrified disgust that came over his face was ludicrous.

"Phew!" he gasped, throwing the bloom to the ground, "it smells like a garbage can."

On examining the bloom, we found it to be a carnivorous plant that traps insects, and it was the decaying insects in the base of the flower that caused the bad smell.

"Well," Fred said, "I don't think much of this place so far. Rain, heat, bugs, man-eating tigers and flowers that smell like a swill barrel. I don't think this country will take much of the tourist trade away from California."

As we went on, Rice remarked that it was strange that we had not seen any birds. A little later I pointed out some large birds flying over the river, but when Rice looked with the glasses, he said they were not birds. "They look more like great bats. They have leathery wings, and no feathers." One of the things flew over to inspect us, and we saw it was a sort of flying lizard, with huge, bat-like wings, and a mouth that looked capable of tearing a man's arm off. Fred fired at it with the shotgun, and it flew off, hissing angrily. Rice said it was a pterodactyl, or something similar.

"The conditions here are evidently about the same as they were on the earth during the Pliocene period, and we can expect to find monstrous beasts and

reptiles such as existed on earth thousands of years ago."

"Do you think there are any people here?" I asked. "I doubt it," Rice answered. "We will keep our eyes open for signs of intelligent life, but I hardly think we will find any."

Farther up the valley, the cliff along which we were walking, narrowed to a rocky ledge on the side of a mountain that rose on our right. The top of the mountain was hidden in the clouds, but what we could see of it was rocky and barren.

On the far side of the valley, the country was rolling hills, covered with forest in most places, but with a few open meadows here and there. With the glasses, we could see countless head of game on the meadows, but they were too far away for us to distinguish what they were.

The river valley was teeming with life, but most of the living things on the lowland seemed to be reptilian. There were snakes, from little ones three or four feet long, up to monsters at least 50 feet in length. On the sand bars along the river were things that looked like crocodiles, except that they had six legs instead of four. The pterodactyls seemed to be on good terms with these beasts.

A little farther on, a waterfall barred our way. We could go down on the flats by the river, but that did not seem advisable on account of the snakes. As Fred remarked, the snakes in that swamp were enough to make one think he had the D.T's.

As we could go no farther on account of the waterfall, we sat down on the edge of the cliff and watched the teeming life below us.

The pterodactyls preyed on the smaller snakes, and I saw one pterodactyl, with a wing spread of about 15 feet, attack a snake almost 10 feet long, and swallow it as easily as a hen would swallow a worm.

Something alarmed the pterodactyls, and they all flew across the river. Looking for the cause of their fright, we saw a beast coming out of the jungle of ferns. The beast was larger than an elephant, and looked like an enormous horned toad. The body and head were covered with scales or horny plates, and there was a row of spines down its back. The neck was long, and the head comparatively small, with a relatively large mouth armed with wicked looking teeth. This beast lumbered along like a tank, occasionally stopping to devour a snake, until it was directly beneath us.

We sat perfectly still, but the beast must have winded us, for it stood up on its hind legs and tail and tried to reach us. Fortunately, the cliff at this point was too high, but we could not retreat, as the mountain rose sheer at our backs, and to go back the way we had come, we would have had to pass a low place where the beast could easily have reached us.

We all opened fire on the beast, but our rifles seemed to be no more effective than Fred's shotgun. Rice and I had each emptied two clips into its body without effect, when I remembered the grenades that we had brought along for just such an emergency. Watching my chance, I dropped a grenade directly into that gaping mouth. The mouth closed with a snap, and an instant later there was a muffled explosion, and the beast fell over backward, kicking convulsively.

"Good for you, Harry, you fixed him," exclaimed Rice.

I thought I had "fixed him," but just then the

beast got up and started off like a runaway truck. Its head had been blown completely off, but the beast had such a small brain that the loss of it did not kill it immediately. As Fred put it, it was dead, but didn't know it.

Rice said the beast was a carnivorous dinosaur, but could not classify it exactly.

After this adventure, we decided to return to the ship, and did so without any mishap other than a fright from a big snake which crossed our path.

When we reached the ship, Fred insisted that we each take a dose of quinine to prevent fever, and also suggested that the ship be moved the next day to the hill country across the river, where we would be farther from the unhealthy mists of the river swamp.

THUNDER, lightning, and rain came again that night; the rain continued until almost noon, when it let up long enough to give us some sunlight through the clouds.

As soon as we got a sight of the sun, Rice started the motor-generators, and we rose gently into the air. The clouds were hanging rather low, in scattered masses, so we did not go very high, but started the propeller and sailed across the river at an altitude of about 2,000 feet.

Reaching the other side, we flew around for about an hour, looking for a suitable place to land. Finally, we decided on a meadow about fifteen miles from the river, and about 2,000 feet higher than we had been. This meadow was watered by a large spring, which attracted much game, as we could gather from the numerous trails leading to it.

Near the upper end of the meadow there was a herd of antelope, and Rice steered the ship over them so Fred could get a shot. Fred is a poor shot with a rifle, but after three attempts, he knocked over a fine buck. We landed, picked up the antelope, then taxied the ship down to the spring.

It was a nice place for a camp, but we decided not to set up the tent, as dangerous animals and reptiles would make it unsafe to sleep outside the ship. The insects did not seem to be so numerous here, so we had hopes of being able to sleep with the ports open and so save our oxygen.

For the next week we explored the country within walking distance of the meadow, and saw a great abundance of game. There were antelope, and animals that looked like miniature horses.

The horse-like animals were not over two feet high at the shoulder, and they had cloven hoofs. In every other way they resembled little horses. We did not shoot any of them, but I got several pictures of them, as well as a picture of a saber-tooth tiger which was eating an antelope. The tiger did not pay any attention to me, for which I was thankful.

In our rambles we often came upon large dinosaurs, both of the carnivorous and herbivorous species. The herbivorous kind were stupid mountains of flesh that seemed to have very small brains. They were harmless, unless one got directly in their way, for they did not seem to have sense enough to turn aside for anything. The carnivorous dinosaurs, on the other hand, were a constant danger, for they would charge on sight, and they were very hard to kill. We avoided them as much as possible.

One morning, while we were washing at the spring, something alarmed a bunch of antelope that were feeding at the edge of the meadow, about 300 yards

from us. The herd galloped away, but left two of their number kicking on the ground.

We soon learned what had struck them. Five creatures emerged from the forest, picked up the antelope and carried them back into the jungle. These creatures walked on their hind legs, but they did not look human. They had large tails, and resembled kangaroos more than anything else.

Fred claimed that the creatures had considerable intelligence, because they had struck down the antelope from a distance, which, he argued, showed that they knew something of missile weapons. Rice said that did not prove much intelligence, as apes will throw things when angry, and apes are not of very high intelligence.

To settle the question, we determined to track the creatures down, and endeavor to learn more about them. Fred and I thought they might be more or less human, or at least be the forerunners of humanity.

We found the tracks at the edge of the meadow, and where they had crossed a small stream, the mud showed the marks of wide, flat feet, with only three toes. "Those look more like frog or lizard tracks than that of man," remarked Rice.

We followed the tracks for several miles without any great difficulty, as they kept to a game trail where the walking was easy. Soon they led us higher up into the hills, and finally to a rough, broken country, with numerous high, rocky cliffs. At the foot of one of these cliffs the tracks vanished, and hunt as we would, we could not find them again.

After circling around for quite a distance, with no further results, we met at the foot of the cliff to decide what to do next. While we were talking it over, a large rock fell from the cliff and very nearly hit Rice. We all ran, and were speeded in our flight by a shower of rocks, some of which came uncomfortably close.

When we were out of range, we stopped and looked back. The top of the cliff was lined with fifty or more of the creatures we had been looking for.

At this distance we could see them distinctly, and there was nothing human about them. Rather, they appeared to be reptilian, as they were covered with scales, and had small, flat heads that reminded me of lizards. They stood almost 10 feet high, and the hind legs and tail were very powerful, while the front legs, or arms, were small and weak, like those of a kangaroo.

The cliff, at this point, was much higher than we had thought, for the place where these creatures were standing was only a wide ledge, and the rock at their backs was full of caves that were, no doubt, the homes of these queer creatures.

We went back closer to the cliff, as Rice wanted to get some pictures at close range. This almost resulted in disaster, as they made no hostile move until we were fairly close, and then let drive with a volley of rocks, one of which smashed the camera. A few shots over their heads drove them back, but they continued to throw rocks, so we again had to retreat.

The rocks were thrown, not with the hands, as we throw, but by means of the powerful tails which these creatures have. The tail is flat at the end, like a beaver's, and a rock placed on it is thrown by jerking the tail up over the head. This was no

doubt the way the two antelopes were killed before.

"Well," Rice remarked, "if these are the people of Venus, I don't believe they put 'welcome' on the doormat."

"They are certainly hostile, and they throw rocks too well for me to desire a closer acquaintance," Fred replied.

Fred was very much disappointed, as I think the very name of Venus had conjured up visions of beautiful maidens in his mind, and these scaly, stone-throwing creatures were quite a contrast to what he had been hoping for. When I kidded him about it on the way back, he grinned rather sheepishly and said he was not looking for a wife.

THAT evening we discussed the creatures we had seen, and decided that, although they seemed the most intelligent of any of the various forms of life that inhabited this planet, it was doubtful if they were the masters of the planet, as man was of the earth. Rice suggested that, although Venus was not now suited to human habitation, it no doubt would be in the future, and as there was now a means of reaching it, Venus might solve the problem of how to provide for the surplus population of the earth. It would make it simpler if there was no intelligent race to dispute possession.

The heat and moisture of the climate was having a bad effect on all of us. The least exertion required an effort of will, as we were not accustomed to the enervating effect of a tropical climate. We had explored the country as far as we could walk in a day, and Fred suggested that we cruise around in the ship for another day or so and then start back for the earth. Fred seemed to think we were liable to get jungle fever if we stayed on Venus much longer.

The day following our adventure with the rock-throwers, we set off on a trip around the planet, on the same plan as our cruise around the world. The heavy clouds hampered our observations quite a bit, but even where we could see distinctly, there was no trace of cities or anything that suggested the work of civilized intelligent inhabitants.

A large portion of the planet is covered with water, and the largest body of land, that on which we had landed, was about the size of Australia. There were numerous islands, most of them of volcanic formation, and at least one with a volcano in eruption. We did not see any place that looked more favorable for human habitation than the first landing place, so we decided to head for mother earth once more.

The return trip required more careful navigation than the voyage to Venus. It was necessary to start in the direction of the sun until we were outside the atmosphere and able to see the earth, then as the earth was on the opposite side of Venus, we used the attraction of Jupiter to swing us to one side, so we could head for the earth without danger of being pulled into Venus, by its gravitation. The course of the voyage was the result of various forces acting on the ship, and as we could control part of these forces, we were very soon headed for the earth. As the earth is not much larger than Venus, our speed increased much more slowly than when we could use the attraction of the sun.

We settled down for a long, slow trip back, but I, for one, enjoyed every minute of it. Rice was always ready to answer my questions about the stars and planets that we could see shining so brightly

in the black sky, and I got a new conception of the work of the astronomers, who could trace the motions of these worlds and suns through the enormous depths of space.

Although we were farther from Mars than when we were on earth, we could see it much better, for here there was no blanket of air to obstruct the sight. Now that our curiosity about Venus was satisfied, the red planet, Mars, shining so brightly, seemed to draw our minds with an irresistible attraction and fill us with an overwhelming desire to visit it.

I think I mentioned that we were provided with magnetic shoes to hold us to the steel deck when the ship was at the neutral point, where the gravitation of the earth and Venus balanced each other. These shoes were a considerable help, as our weight was very slight for a good part of the trip back, and it was disconcerting to say the least, to find one's self sailing up to the ceiling whenever one made too vigorous a step.

The storage batteries under the deck had a greater mass than the remainder of the ship, so there was a slight gravitational effect which would cause an object to float slowly to the deck if allowed to fall. Because of this slight gravitational effect, our food and dishes would stay on the table, but if one set a cup of coffee down too quickly, the inertia of the liquid would overcome the slight effect of gravity, and the liquid would be left in the air in the form of a globular mass that slowly settled to the table.

The third day after leaving Venus, having nothing else to do at the time, I sat down at the radio set and turned on the tubes. This set had been a disappointment, as due to the Heaviside Layer, signals from the earth had all faded out at a very short distance. We were now more than 20,000,000 miles from the earth, so my astonishment may be imagined when I began to pick up signals from various stations on the same. At first I could not understand it, but when I remembered the ray was a perfect conductor, and that it was now focused on the earth, I began to see that the ray must be responsible. The signals evidently followed the ray in the same manner as they follow a wire in the wired wireless systems, which the power companies use to communicate over high-voltage transmission lines. I regretted that we had not installed a transmitting set so I could have called some of the stations that I could hear so plainly.

Rice and Fred were delighted when I plugged in the loudspeaker and tuned in a station that was sending out news reports. It was the greatest thrill I ever got from radio, to be able to hear what was going on in our home planet when we were still millions of miles away.

As the earth drew nearer, Rice reduced our speed by using the attraction of the sun for a brake. As the sun is so much larger than the earth, it was easy to hold the ship back enough to prevent any danger of striking the atmosphere at too great speed.

When we reached the upper limit of the atmosphere, we were over the Atlantic Ocean, and near the equator. Starting the propeller, we headed the ship northwest, and as the thin air offered very little resistance we made good speed, and were soon in sight of home. In a short time we landed at the ranch, 22 days and 3 hours after leaving Venus.

The air of earth smelled fresh when we opened the hatch, and we realized for the first time that the

air in the ship was beginning to smell stale, from the fumes of cooking and from having been breathed over and over.

When we stepped out of the ship, we were welcomed by the ranch crew, who had given us up for lost. The cook, especially, seemed glad to see us, and hurried us in to dinner. He acted as if we had not had a square meal since we left. When we told them we had been to Venus, the men seemed to think we were joking; we did not try to convince them, for most people think what has never been done, cannot be done.

WE have been home nearly a month now, and Fred is trying to persuade us to make a trip to Mars. Rice says it will be very dangerous to attempt it, as the ship may not be able to carry

enough oxygen to make the round trip, and if there was no oxygen on Mars we could not recharge the tanks.

I have been busy installing a powerful radio transmitter in the ship, and as Rice, who has been calculating speed and distance, has decided that the trip might be made, we will soon be ready to start.

I realize that this account of our trip to Venus will not be believed by many people, but if they will listen on a wave length of 22 meters, at noon and midnight, Central Standard Time, we will try to communicate with them from Mars, if we reach that planet.

We know that we may meet death in the vast depths of space, but it is a great adventure, and we are going. Listen for our signals in about two months from now.

THE END

What Do You Know?

READERS of AMAZING STORIES have frequently commented upon the fact that there is more actual knowledge to be gained through reading its pages than from many a textbook. Moreover, most of the stories are written in a popular vein, making it possible for any one to grasp important facts.

The questions which we give below are all answered on the pages as listed at the end of the questions. Please see if you can answer the questions without looking for the answer, and see how well you check up on your general knowledge.

1. What is the theory of the great Swedish chemist Arrhenius about the dissemination of life through the universe? (See page 933.)
2. How is the human brain fed? (See page 934.)
3. In the motion of the earth in its orbit around the sun, what is the rôle of gravitation? See page 935.)
4. What is Newton's law of gravitation? See page 961.)
5. If there were such a thing as a conductor of gravitation, would it affect Newton's law? (See page 961.)
6. Why is it probable that the planet Mars has very little atmosphere? (See Page 963.)
7. Does Venus or does Mars come closest to the earth at the nearest approach? (See page 963.)
8. Why do we think that the planet Venus has an atmosphere of considerable density? (See page 963.)
9. What is the principle and construction of range-finding glasses? (See page 965.)
10. What city is called the Key of Central Asia? (See page 974.)
11. What Asiatic wind carries fever? (See page 974.)
12. What is the nature of the depression filled by the Caspian Sea? (See page 975.)
13. What prevents the Caspian Sea, which has no outlet, from overflowing its shores? (See page 975.)
14. How long is the famous railroad between Moscow and Leningrad (St. Petersburg)? (See page 977.)
15. What city has been called "The Star of the Desert?" (See page 977.)
16. What do the rulers of Dahomey do as a courtesy to illustrious personalities? (See page 980.)
17. What do you know about the famous Amazons of Dahomey? (See page 981.)
18. What are four names for gyratory storms, as used in different quarters of the earth? (See page 985.)
19. Between what parallels of latitude is the zone of cyclones located? (See page 986.)
20. How is the lifting power of the gas in a balloon calculated? (See page 995.)
21. What is the name of the gland which is called the "eye of the brain?" (See page 1003.)

READERS' VOTE OF PREFERENCE

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THE PSYCHOLOGICAL SOLUTION

By A. Hyatt Verrill

(Concluded from page 957)

many ways. But you're a long way off in some respects, just the same. If you got your ideas by reasoning from the psychology of men, how the devil did you get this so near right when you say here the dead man's companion was a Latin-American? How do you square things up? It gets me how you doped this out by working on a basis of Latin-American temperament when, all along, Mr. Hayden was the fellow's companion."

Hayden, who had been listening in amazement as the detective read the report, now spoke. "Doctor Thane was right," he announced. "I'm beginning to believe in this psychological stuff myself. You see my mother was a Chilean."

"Well, I'll be hanged!" ejaculated Captain Haley.

"Now who wins?" cried Dr. Thane. "Science, sir, is an exact thing. Though it may err slightly at

times, Haley, it is always ultimately triumphant."

"Maybe you're right," somewhat grudgingly admitted the other, as he replaced the scientist's report. "But where did those dog's hairs and that chromite sand come in?"

Doctor Thane snorted. "Did not Mr. Hayden state that a dog crossed the road?" he demanded. "No doubt he left hairs on the ground which stuck to Mission's hand as he fell. And as for the auriferous gravel, he was reaching for a sample in his pocket when he was thrown from the car. That sample, Sir, was gold-bearing or in other words, auriferous, gravel, and was unquestionably chromitic. It was, no doubt, clutched spasmodically in Mission's hand and was ground into the skin when he struck the earth."

"Guess the cigars are on me," grinned Haley.

THE END

A MODERN THOUGHT MACHINE

A calculating machine depicted that is almost human in its operation

NEW YORK, FRIDAY, OCTOBER 21, 1927.

'Thinking Machine' Does Higher Mathematics; Solves Equations That Take Humans Months

Special to The New York Times.

BOSTON, Oct. 20.—Dr. Vannevar Bush, Professor of Electric Power Transmission at the Massachusetts Institute of Technology, with the aid of a staff of research workers, including H. L. Hazen, H. R. Stewart, F. G. Kear and F. D. Gage, has perfected a "thinking machine." It is an electrical apparatus which solves quickly mathematical problems too complex for the human brain.

The machine, called the "product integrator," according to Professor Bush, opens fields of research hitherto inaccessible. Work on it began several years ago, with the object of meeting the need for a machine which would automatically solve problems of advanced electrical theory rapidly and accurately. A technical description of the instrument is to be published by the Franklin Institute.

"The product integrator," Dr. Bush said, "might be called an adding machine carried to an extreme in its design. Where workers in the business world are ordinarily satisfied with addition, subtraction, multiplication and division of numbers, the engineer deals with curves and graphs, which represent for him the

past, present and future of the things in which he deals.

The apparatus requires from eight minutes to a few hours to make computations which would take from a month to a year to work out by ordinary methods.

The foundation of the integrator is a watt hour meter. The mathematician takes the equations which he is interested in and plots them on sheets of paper. These sheets are passed under pointers and operators along the machine keep the pointers on the curves. As the pointers move, the power flowing through the meter varies in proportion.

The meter controls a motor which drives a pencil on another sheet of paper, tracing a curve, which is called the integral and which is the result sought. A second device, somewhat different from the first, but performing the same operation, integrates the result a second time.

Dr. Bush said the apparatus will solve practically any "second order differential equation," a type with which engineers have often to deal.

Dr. Bush, who is 37 years old and was graduated from Tufts College in 1913, was a specialist on submarine detection devices for the navy during the World War.

THE clipping which we reproduce here describes what is really a highly-developed calculating machine. In a way, it indicates a performance of our mental operations by mechanical construction.

The reporter of the daily paper has undoubtedly made the most out of it, but it does fit in very well with some of the stories which we published. It is certainly in line with the marvelous work done by the hero of *The Thought Machine*, by Ammianus Marcellinus— if we consider the machine as the hero—which was published in the February, 1927, issue of *AMAZING STORIES*.

ROBUR THE CONQUEROR or THE CLIPPER OF THE CLOUDS *by Jules Verne*

Author of "A Trip to the Center of the

Earth," "Off on a Comet," etc.



Suddenly a shout of terror rose from the crowd. The Go-ahead increased rapidly in size, and the aeronef appeared dropping with her. The gas had dilated in the higher zones of the atmosphere and had burst the balloon which, half inflated still, was falling rapidly. But the aeronef, slowing her ascension screws, came down just as fast. She ran alongside the Go-ahead when she was not more than four thousand feet from the ground.

ONE night, an aerial trumpet blared blazing notes through the air immediately over the Great Lake section. Two days later, a like sound was heard over Europe, a week later, it was heard over Asia.

What could it be? There was nothing in sight. Yet, that sound was unmistakable. All the observatories throughout the world were on the lookout, but nobody could explain this inexplicable phenomenon.

The Weldon Institute of Philadelphia, organized to further the advance of the "lighter than air" flying apparatus, and just as staunchly to oppose the "heavier than air" flying machine, is just about that time facing a division into two factions, each to be led by an eminent man of that city.

Uncle Prudent, the president, strongly maintains that the screw ought to be put behind. Phil Evans, who was named secretary of the club by virtue of a mere pin-point, maintains that the screw should be placed in front.

When the discussion seems to be at its very highest, and the final break seems imminent, a stranger unexpectedly presents himself in the clubroom—insults its members for their pig-headed belief in the balloon, makes fun of the aeronauts, boasts of the marvels of his heavier-than-air machine, and raises a frightful tumult by the remarks with which he greets the outbursts of his adversaries. Amid a volley of revolver shots he completely disappears.

That night, neither Uncle Prudent nor Phil Evans come home. Frycollin, Uncle Prudent's valet, is also found to be mysteriously missing. They had last been seen entering Fairmount Park.

Frycollin notices several mysterious shadows coming toward them, but his warning comes too late. Almost

immediately all three men find themselves tied and quickly removed to the interior of some structure. After several hours, they extricate themselves from their bonds, and try to cut their way out of their room. But the door and walls resist every attempt of their bowie knives. When dawn breaks, they realize that they are flying high above a part of the country which they quickly recognize as Niagara Falls.

Robur, the Conqueror, they soon learn is their captor, and their prison is his airship, which is equipped with ascension screws to keep it aloft, with propelling screws and is thoroughly provisioned for extended flights. Tom Turner, the Engineer, Robur's mate, two assistants, two steersmen and a cook form Robur's crew. The captives are allowed to roam freely about the aerostat.

Though the aviators are lost in admiration of his marvelous machinery, with its detailed equipment to meet any emergency of altitude, or climatic condition, they maintain their cold contempt for Robur, and his machine. "The Albatross."

They travel westward over Canada, down to San Francisco, and then start over the Pacific to Alaska. One futile attempt by the prisoners to drop from the Albatross into the water while they are flying comparatively low, eliminates any further thought of escaping in such a manner.

For the benefit of his "guests," Robur's men harpoon a whale which is sighted in the Pacific. They start westward to Tokio, but change their course to the Himalayas. Over the high mountains, the prisoners experience several hours of painful palpitation, due to the extreme rarefaction of the air—especially while they are flying over Mt. Everest.

ROBUR the CONQUEROR

By Jules Verne

Part II

CHAPTER XIII

Over the Caspian

THE engineer had no intention of taking his ship over the wondrous lands of Hindoostan. To cross the Himalayas was to show how admirable was the machine he commanded; to convince those who would not be convinced was all he wished to do.

But if in their hearts Uncle Prudent and his colleague could not help admiring so perfect an engine of aerial locomotion, they allowed none of their admiration to be visible. All they thought of was how to escape. They did not even admire the superb spectacle that lay beneath them as the Albatross flew along the river banks of Punjab.

At the base of the Himalayas there runs a marshy belt of country, the home of malarious vapors, the Terai, in which fever is epidemic. But this offered no obstacle to the Albatross, nor in any way affected the health of her crew. She kept on without undue haste towards the angle where India joins on to China and Turkestan, and on the 29th of June, in the early hours of the morning, there opened to view the incomparable valley of Cashmere.

Yes! incomparable is this gorge between the major and the minor Himalayas—furrowed by the buttresses in which the mighty range dies out in the basin of the Hydaspes, and watered by the capricious windings of the river which saw the struggle between the armies of Porus and Alexander, when India and Greece contended for Central Asia. The Hydaspes is still there, although the two towns founded by the Macedonian in remembrance of his victory have long since disappeared.

During the morning the aeronef was over Serin-gur, which is better known under the name of Cashmere. Uncle Prudent and his companion beheld

boatmen like ants; its palaces, temples, kiosks, river; its wooden bridges stretching across like threads, its villas and their balconies standing out in bold outline, its hills shaded by tall poplars, its roofs grassed over and looking like molehills; its numerous canals, with boats like nut-shells, and

boatmen like ants; its palaces, temples, kiosks, mosques, and bungalows on the outskirts; and its old citadel of Hari-Pawata on the slope of the hill, like the most important of the forts of Paris on the slope of Mont Valerien.

"That would be Venice," said Phil Evans, "if we were in Europe."

"And if we were in Europe," answered Uncle Prudent, "we should know how to find the way to

IN the concluding chapters of "Robur the Conqueror," one of his less known stories, but a highly interesting work of Jules Verne, our favorite author presents interesting facts on aviation that were not only interesting at the time the story was written, but hold excellent interest even in these latter days of aviation. While we may not be able to build a machine such as the "Albatross" in the near future, we believe with Jules Verne, that eventually it will be built.

America." However, the Albatross did not linger over the lake through which the river flows, but continued her flight down the valley of the Hydraspes.

For half an hour only she descended to within thirty feet of the river and remained stationary. Then, by means of an india-rubber hose, Tom Turner and his men replenished their water-supply, which was drawn up by a pump worked by the accumulators. Uncle Prudent and Phil Evans stood watching the operation. The same idea occurred to each of them.

They were only a few feet from the surface of the flowing stream. They were both good swimmers. A plunge would give them their liberty; and once they reached the river, how could Robur get them back again? For his propellers to work, he must keep at least six feet above the ground.

In a moment all the chances pro and con were run over in their minds. In a moment they were considered, and the prisoners rushed to throw themselves overboard, when several pairs of hands seized them by the shoulders.

They had been watched; and flight was utterly impossible.

This time they did not yield without resisting. They tried to throw off those who held them. But these men of the Albatross were no children.

"Gentlemen," said the engineer, "when people have the pleasure of traveling with Robur the Conqueror, as you have so well named him, on board his admirable Albatross, they do not leave him in that way. I may add they never leave him."

Phil Evans drew away his colleague, who was about to commit some act of violence. They retired to their cabin, resolved to escape, even if it cost them their lives.

Immediately the Albatross resumed her course to the west. During the day she passed over the territory of Kabulistan, at moderate speed, catching a momentary glimpse of its capital, and crossed the frontier of the kingdom of Herat, nearly seven hundred miles from Cashmere.

In these much-disputed countries, the open road for the Russians to the English possessions in India, there were seen many columns and convoys, and in a word, everything that constitutes in men and material an army on the march. There were heard also the roar of the cannon and the cracking of musketry. But the engineer never meddled with the affairs of others where his honor or humanity was not concerned. He passed above them. If Herat, as we are told, is the key of Central Asia, it mattered little to him if it was kept in an English or Muscovite pocket. Terrestrial interests were nothing to him who had made the air his domain.

Besides, the country soon disappeared in one of those sandstorms which are so frequent in these regions. The wind called the "tebbad" bears along the seeds of fever in the impalpable dust it raises in its passage. And many are the caravans that perish in its eddies.

To escape this dust, which might have interfered with the working of the screws, the Albatross shot up some six thousand feet into a purer atmosphere.

And thus vanished the Persian frontier and the extensive plains. The speed was not excessive, although there were no rocks ahead, for the mountains marked on the map are of very moderate altitude. But as the ship approached the capital, she had to

steer clear of Demavend, whose snowy peak rises some twenty-two thousand feet, and the chain of Elbruz, at whose foot is built Teheran.

As soon as the day broke on the 2nd of July the peak of Demavend appeared above the sandstorm, and the Albatross was steered so as to pass over the town, which the wind had wrapped in a mantle of dust.

However, about six o'clock her crew could see the large ditches that surround it, and the Shah's palace, with its walls covered with porcelain tiles, and its ornamental lakes, which seemed like huge turquoises of beautiful blue.

It was but a hasty glimpse. The Albatross now headed for the north, and a few hours afterwards she was over a little hill at the northern angle of the Persian frontier, on the shores of a vast extent of water which stretched away out of sight to the north and east.

The town was Ashurada, the most southerly of the Russian stations. The vast extent of water was a sea. It was the Caspian.

The eddies of sand had been passed. There was a view of a group of European houses rising along a promontory, with a church tower in the midst of them.

The Albatross swooped down towards the surface of the sea. Towards evening she was running along the coast—which formerly belonged to Turkestan, but now belongs to Russia—and in the morning of the 3rd of July she was about three hundred feet above the Caspian.

There was no land in sight, either on the Asiatic or European side. On the surface of the sea a few white sails were bellying in the breeze. These were native vessels recognizable by their peculiar rig—kesebeys, with two masts; kayuks, the old pirate-boats, with one mast; teimils, and smaller craft for trading and fishing. Here and there a few wreaths of smoke rose up to the Albatross from the funnels of the Ashurada steamers, which the Russians keep as the police of these Turcoman waters.

That morning Tom Turner was talking to the cook, Tapage, and to a question of his replied, "Yes; we shall be over the Caspian for about forty-eight hours."

"Good!" said the cook; "then we can have some fishing."

"Just so."

They were to remain for forty-eight hours over the Caspian, which is some six hundred and twenty-five miles long and two hundred wide, because the speed of the Albatross had been much reduced, and while the fishing was going on she would be stopped altogether.

The reply was heard by Phil Evans, who was then in the bow, where Frycollin was overwhelming him with piteous pleadings to be put "on the ground."

Without replying to this preposterous request, Evans returned aft to Uncle Prudent; and there, taking care not to be overheard, he reported the conversation that had taken place.

"Phil Evans," said Uncle Prudent, "I think there can be no mistake as to this scoundrel's intention with regard to us."

"None," said Phil Evans. "He will only give us our liberty when it suits him, and perhaps not at all."

"In that case we must do all we can to get away from the Albatross."

"A splendid craft she is, I must admit."

"Perhaps so," said Uncle Prudent; "but she belongs to a scoundrel who detains us on board in defiance of all right. For us and ours she is a constant danger. If we do not destroy her——"

"Let us begin by saving ourselves!" answered Phil Evans; "we can see about the destruction afterwards."

"Just so," said Uncle Prudent. "And we must avail ourselves of every chance that comes along. Evidently the Albatross is going to cross the Caspian into Europe, either by the north into Russia or by the west into the southern countries. Well, no matter where we stop, before we get to the Atlantic we shall be safe. And we ought to be ready at any moment."

"But," asked Evans, "how are we to get out?"

"Listen to me," said Uncle Prudent. "It may happen during the night that the Albatross may drop to within a few hundred feet of the ground. Now there are on board several ropes of that length, and, with a little pluck we might slip down them——"

"Yes," said Evans. "If the case is desperate I don't mind——"

"Nor I. During the night there's no one about except the man at the wheel. And if we can drop one of the ropes forward without being seen or heard——"

"Good! I am glad to see you are so cool; that means business. But just now we are over the Caspian. There are several ships in sight. The Albatross is going down to fish. Cannot we do something now?"

"Sh! They are watching us much more than you think," said Uncle Prudent. "You saw that when we tried to jump into the Hydaspes."

"And who knows that they don't watch us at night?" asked Evans.

"Well, we must end this; we must finish with this Albatross and her master."

IT will be seen how in the excitement of their anger the colleagues—Uncle Prudent in particular—were prepared to attempt the most hazardous things. The sense of their powerlessness, the ironical disdain with which Robur treated them, the brutal remarks he indulged in—all contributed towards intensifying the aggravation which daily grew more manifest.

This very day something occurred which gave rise to another most regrettable altercation between Robur and his guests. This was provoked by Frycollin, who, finding himself above the boundless sea, was seized with another fit of terror. Like a child, like the negro he was, he gave himself over to groaning and protesting and crying, and writhing in a thousand contortions and grimaces.

"I want to get out! I want to get out! I am not a bird! Boohoo! I don't want to fly. I want to get out!"

Uncle Prudent, as may be imagined, did not attempt to quiet him. In fact, he encouraged him, and particularly as the incessant howling seemed to have a strangely irritating effect on Robur.

When Tom Turner and his companions were getting ready for fishing, the engineer ordered them to shut up Frycollin in his cabin. But the negro never

ceased his jumping about, and began to kick at the wall and yell with redoubled power.

It was noon. The Albatross was only about fifteen or twenty feet above the water. A few ships, terrified at the apparition, sought safety in flight.

As may be guessed, a sharp look-out was kept on the prisoners, whose temptation to escape could not but be intensified. Even supposing they jumped overboard they would have been picked up by the india-rubber boat. As there was nothing to do during the fishing, in which Phil Evans intended to take part, Uncle Prudent, raging furiously as usual, retired to his cabin.

The Caspian Sea is a volcanic depression. Into it flow the waters of the Volga, the Ural, the Kour, the Kouma, the Jemba, and others. Without the evaporation which relieves it of overflow, this basin, with an area of 17,000 square miles, and a depth of from sixty to four hundred feet, would flood the low marshy ground to its north and east. Although it is not in communication with the Black Sea or the Sea of Aral, being at a much lower level than they are, it contains an immense number of fish—such fish, be it understood, as can live in its bitter waters, the bitterness being due to the naphtha which pours in from the springs on the south.

The crew of the Albatross made no secret of their delight at the change in their food the fishing would bring them.

"Look out!" shouted Turner, as he harpooned a good-sized fish, not unlike a shark.

It was a splendid sturgeon seven feet long, called by the Russians belouga, the eggs of which mixed up with salt, vinegar, and white wine form caviare. Sturgeons from the river are, it may be, rather better than those from the sea; but these were welcomed warmly enough on board the Albatross.

But the best catches were made with the dragnets, which brought up at each haul carp, bream, salmon, salt-water pike, and a number of medium-sized sterlets, which wealthy gourmets receive alive in Astrakhan, Moscow, and St. Petersburg, and which now passed direct from their natural element into the cook's kettle without any charge for transport.

An hour's work sufficed to fill up the larders of the aeronef, and she resumed her course to the north.

During the fishing, Frycollin had continued shouting and kicking at his cabin wall and making a tremendous noise.

"That wretched nigger will not be quiet, then?" said Robur, almost out of patience.

"It seems to me, sir, he has a right to complain," said Phil Evans.

"Yes, and I have a right to look after my ears," replied Robur.

"Engineer Robur!" said Uncle Prudent, who had just appeared on deck.

"President of the Weldon Institute!"

They had stepped up to one another, and were looking into the whites of each other's eyes. Then Robur shrugged his shoulders. "Put him at the end of a line," he said.

Turner saw his meaning at once. Frycollin was dragged out of his cabin. Loud were his cries when the mate and one of the men seized him and tied him into a tub, which they hitched to a rope—one of those very ropes, in fact, that Uncle Prudent had intended to use as we know.

The negro at first thought he was going to be hanged. No! he was only going to be towed!

The rope was paid out for a hundred feet and Frycollin found himself hanging in space.

He could then shout at his ease. But fright contracted his larynx, and he was mute.

Uncle Prudent and Phil Evans endeavored to prevent this performance. They were thrust aside.

"It is scandalous! It is cowardly!" said Uncle Prudent, quite beside himself with rage.

"Indeed!" said Robur.

"It is an abuse of power against which I protest."

"Protest away!"

"I will be avenged, Mr. Robur."

"Avenge when you like, Mr. Prudent."

"I will have my revenge on you and yours."

The crew began to close up with anything but peaceful intentions. Robur motioned them away.

"Yes, on you and yours!" said Uncle Prudent, whom his colleague in vain tried to keep quiet.

"Whenever you please!" said the engineer.

"And in every possible way!"

"That is enough now," said Robur, in a threatening tone. "There are other ropes on board. And if you won't be quiet, I'll treat you as I have treated your servant!"

Uncle Prudent was silent, not because he was afraid, but because his wrath had nearly choked him; and Phil Evans led him off to his cabin.

During the last hour, the air had been strangely troubled. The symptoms could not be mistaken. A storm was threatening. The electric saturation of the atmosphere had become so great that about half-past two o'clock, Robur witnessed a phenomenon that was new to him.

In the north whence the storm was traveling, were spirals of half-luminous vapor due to the difference in the electric charges of the various beds of cloud. The reflections of these bands came running along the waves in myriads of lights, growing in intensity as the sky darkened.

The Albatross and the storm were sure to meet, for they were exactly facing each other.

And Frycollin? Well! Frycollin was being towed—and towed is exactly the word, for the rope made such an angle with the aeronef, now going at over sixty knots an hour, that the tub was a long way behind her.

The crew were busy in preparing for the storm, for the Albatross would either have to rise above it or drive through its lowest layers. She was about three thousand feet above the sea when a clap of thunder was heard. Suddenly the squall struck her. In a few seconds the fiery clouds swept on around her.

Phil Evans went to intercede for Frycollin, and asked for him to be taken on board again. But Robur had already given orders to that effect, and the rope was being hauled in, when suddenly there took place an inexplicable slackening in the speed of the screws.

The engineer rushed to the central deck-house. "Power! More power!" he shouted. "We must rise quickly and get over the storm!"

"Impossible, sir!"

"What's the matter?"

"The currents are troubled! They are intermittent!" And, in fact, the Albatross was falling fast.

As with the telegraph wires on land during a

storm, so was it with the accumulators of the aeronef. But what is only an inconvenience in the case of messages was here a terrible danger.

"Let her down, then," said Robur, "and get out of the electric zone! Keep cool, my lads!"

He stepped on to his quarter-deck and his crew went to their stations.

Although the Albatross had sunk several hundred feet she was still in the thick of the cloud, and the flashes played across her as if they were fireworks. It seemed as though she was struck. The screws ran more and more slowly, and what began as a gentle descent threatened to become a collapse.

In less than a minute it was evident they would get down to the surface of the sea. Once they were immersed no power could drag them from the abyss.

Suddenly the electric cloud appeared above them. The Albatross was only sixty feet from the crest of the waves. In two or three seconds the deck would be under water.

But Robur, seizing the propitious moment, rushed to the central house and seized the levers. He turned on the currents from the batteries, now no longer neutralized by the electric tension of the surrounding atmosphere. In a moment the screws had regained their normal speed and checked the descent; and the Albatross remained at her slight elevation while her propellers drove her swiftly out of reach of the storm.

Frycollin, of course, had a bath—though only for a few seconds. When he was dragged on deck he was as wet as if he had been to the bottom of the sea. As may be imagined, he cried no more.

During the morning of the 4th of July the Albatross had passed over the northern shore of the Caspian.

CHAPTER XIV

The Aeronef At Full Speed

IF ever Prudent and Evans despaired of escaping from the Albatross, it was during the two days that followed. It may be that Robur considered it more difficult to keep a watch on his prisoners while he was crossing Europe, and he knew that they had made up their minds to get away.

But any attempt to have done so would have been simply committing suicide. To jump from an express going sixty miles an hour is to risk your life, but to jump from a machine going one hundred and twenty miles an hour would be to seek your death.

And it was at this speed, the greatest that could be given to her, that the Albatross tore along. Her speed exceeded that of the swallow, which is one hundred and twelve miles an hour.

At first the wind was in the northeast, and the Albatross had it fair, her general course being a westerly one. But the wind began to drop, and it soon became impossible for the colleagues to remain on the deck without having their breath taken away by the rapidity of the flight. And on one occasion they would have been blown overboard if they had not been dashed up against the deck-house by the pressure of the wind.

Luckily the steersman saw them through the windows of his cage, and by the electric bell gave the alarm to the men in the fore-cabin. Four of them came aft, creeping along the deck.

Those who have been at sea, beating to windward

in half a gale of wind, will understand what the pressure was like. Only here it was the Albatross that by her incomparable speed made her own wind.

To allow Uncle Prudent and Phil Evans to get back to their cabin, the speed had to be reduced. Inside the deckhouse the Albatross bore with her a perfectly breathable atmosphere.

To stand such driving, the strength of the apparatus must have been prodigious. The propellers spun round so swiftly that they seemed immovable, and it was with irresistible penetrative power that they screwed themselves through the air.

The last town that had been noticed was Astrakhan, situated at the north end of the Caspian Sea. The Star of the Desert—it must have been a poet who so called it—has now sunk from the first rank to the fifth or sixth. A momentary glance was afforded at its old walls, with their useless battlements, the ancient towers in the center of the city, the mosques and modern churches, the cathedral with its five domes, gilded and dotted with stars as if it were a piece of the sky, as they rose from the bank of the Volga, which here, as it joins the sea, is over a mile in width.

Thenceforward the flight of the Albatross became quite a race through the heights of the sky, as if she had been harnessed to one of those fabulous hippogriffs which cleared a league at every sweep of the wing.

At ten o'clock in the morning of the 4th of July the aeronef, heading northwest, followed for a little the valley of the Volga. The steppes of the Don and the Ural stretched away on each side of the river. Even if it had been possible to get a glimpse of these vast territories there would have been no time to count the towns and villages. In the evening the aeronef passed over Moscow without saluting the flag on the Kremlin. In ten hours she had covered the twelve hundred miles which separate Astrakhan from the ancient capital of all the Russias:

From Moscow to St. Petersburg the railway line measures about seven hundred and fifty miles. This was but a half-day's journey, and the Albatross, as punctual as the mail, reached St. Petersburg and the banks of the Neva at two o'clock in the morning. Then came the Gulf of Finland, the Archipelago of Abo, the Baltic, Sweden in the latitude of Stockholm, and Norway in the latitude of Christiania. Ten hours only for these twelve hundred miles! Verily it might be thought that no human power would henceforth be able to check the speed of the Albatross, and as if the resultant of her force of projection and the attraction of the earth would maintain her in an unvarying trajectory round the globe.

But she did stop nevertheless, and that was over the famous water fall, the Rjukanfos in Norway. Gousta, whose summit dominates this wonderful region of Telemarken, stood in the west like a gigantic barrier apparently impassable. And when the Albatross resumed her journey at full speed her head had been turned to the south.

And during this extraordinary flight, what was Frycollin doing? He remained silent in a corner of his cabin, sleeping as well as he could, except at meal times.

Tapage then favored him with his company—and amused himself at his expense. "Eh! eh! my boy!" said he. "So you are not crying any more? Per-

haps it hurt you too much? That two hours' hanging cured you of it? At our present rate, what a splendid air-bath you might have had for your rheumatics!"

"It seems to me we shall soon go to pieces!"

"Perhaps so; but we shall go so fast we shan't have time to fall! That is some comfort!"

"Do you think so?"

"I do."

To tell the truth, and not to exaggerate like Tapage, it was only reasonable that owing to the excessive speed the work of the ascension screws should be somewhat lessened. The Albatross glided on its bed of air like a Congreve rocket.

"And shall we last long like that?" asked Frycollin.

"Long? Oh, no; only as long as we live!"

"Oh!" said the negro, beginning his lamentations.

"Take care, Fry, take care! for, as they say in my country, the master may send you to the seesaw!"

And Frycollin gulped down his sobs as he gulped down the meat which, in double doses, he was hastily swallowing.

Meanwhile Uncle Prudent and Phil Evans, who were not men to waste time in wrangling when nothing could come of it, agreed upon doing something. It was evident that escape was not to be thought of. But if it was impossible for them to again set foot on the terrestrial globe, could they not make known to its inhabitants what had become of them since their disappearance, and tell them by whom they had been carried off, and provoke—how was not very clear—some audacious attempt on the part of their friends to rescue them from Robur?

Communicate? But how? Should they follow the example of sailors in distress and enclose in a bottle a document giving the place of shipwreck and throw it into the sea? But here the sea was the atmosphere. The bottle would not swim. And if it did not fall on somebody and crack his skull, it might never be found.

The colleagues were about to sacrifice one of the bottles on board when an idea occurred to Uncle Prudent. He took snuff, as we know, and we may pardon this fault in an American, who might do worse. And as a snuff-taker, he possessed a snuff-box, which was now empty. This box was made of aluminum. If it was thrown overboard, any honest citizen that found it would pick it up, and, being an honest citizen, he would take it to the police-office, and there they would open it and discover from the document what had become of the two victims of Robur the Conqueror!

And this is what was done. The note was short, but it told all, and it gave the address of the Weldon Institute, with a request that it might be forwarded. Then Uncle Prudent folded up the note, shut it in the box, and bound the box round with a piece of worsted so as to keep it from opening as it fell. And then all that had to be done was to wait for a favorable opportunity.

During this marvelous flight over Europe it was not an easy thing to leave the cabin and creep along the deck at the risk of being suddenly and secretly blown away, and it would not do for the snuff-box to fall into the sea or a gulf or a lake or a watercourse, for it would then perhaps be lost. At the same time it was not impossible that the colleagues might in

this way get into communication with the habitable globe.

It was then growing daylight, and it seemed as though it would be better to wait for the night and take advantage of a slackening speed or a halt to go out on deck and drop the precious snuff-box into some town.

When all these points had been thought over and settled, the prisoners found they could not put their plan into execution—on that day, at all events—for the Albatross, after leaving Gousta, had kept her southerly course, which took her over the North Sea, much to the consternation of the thousands of coasting craft engaged in the English, Dutch, French, and Belgian trade. Unless the snuff-box fell on the deck of one of these vessels there was every chance of its going to the bottom of the sea, and Uncle Prudent and Phil Evans were obliged to wait for a better opportunity. And, as we shall soon see, an excellent chance was soon to be offered them.

At ten o'clock that evening the Albatross reached the French coast near Dunkerque. The night was rather dark. For a moment they could see the light-house at Cape Griz-Nez cross its electric beam with the lights from Dover on the other side of the channel. Then the Albatross flew over the French territory at a mean height of three thousand feet.

There was no diminution in her speed. She shot like a rocket over the towns and villages so numerous in northern France. She was flying straight on to Paris, and after Dunkerque came Doullens, Amiens, Creil, Saint Denis. She never left the line; and about midnight she was over the "City of Light," which merits its name even when its inhabitants are asleep—or ought to be.

By what strange whim was it that she was stopped over the city of Paris? We do not know; but down she came till she was within a few hundred feet of the ground. Robur then came out of his cabin, and the crew came on to the deck to breathe the ambient air.

Uncle Prudent and Phil Evans took care not to miss such an excellent opportunity. They left their deck-house and walked off away from the others so as to be ready at the propitious moment. It was important their action should not be seen.

The Albatross, like a huge coleopter, glided gently over the mighty city. She took the line of the boulevards, then brilliantly lighted by the Edison lamps. Up to her there floated the rumble of the vehicles as they drove along the streets, and the roll of the trains on the numerous railways that converge into Paris. Then she glided over the highest monuments as if she was going to knock the ball off the Pantheon or the cross off the Invalides. She hovered over the two minarets of the Trocadero and the metal tower of the Champ de Mars, where the enormous reflector was inundating the whole capital with its electric rays.

This aerial promenade, this nocturnal loitering, lasted for about an hour. It was a halt for breath before the voyage was resumed.

And probably Robur wished to give the Parisians the sight of a meteor quite unforeseen by their astronomers. The lamps of the Albatross were turned on. Two brilliant sheaves of light shot down and moved along over the squares, the gardens, the palaces, the sixty thousand houses, and swept the space from one horizon to the other.

Assuredly the Albatross was seen this time—and not only was seen but heard, for Tom Turner brought out his trumpet and blew a rousing tarantata.

At this moment Uncle Prudent leant over the rail, opened his hand, and let his snuff-box fall.

Immediately the Albatross shot upwards, and past her, higher still, there mounted the noisy cheering of the crowd then thick on the boulevards—a hurrah of stupefaction to greet the imaginary meteor.

The lamps of the aeronef were turned off, and the darkness and the silence closed in around as the voyage was resumed at the rate of one hundred and twenty miles an hour.

This was all that was to be seen of the French capital. At four o'clock in the morning the Albatross had crossed the whole country obliquely; and so as to lose no time in traversing the Alps or the Pyrenees, she flew over the face of Provence to the cape of Antibes. At nine o'clock next morning the San Pietrini assembled on the terrace of St. Peter at Rome were astounded to see her pass over the eternal city. Two hours afterwards she crossed the Bay of Naples and hovered for an instant over the fuliginous wreaths of Vesuvius. Then, after cutting obliquely across the Mediterranean, in the early hours of the afternoon she was signaled by the look-outs at La Goulette on the Tunisian coast.

After America, Asia! After Asia, Europe! More than eighteen thousand miles had this wonderful machine accomplished in less than twenty-three days!

And now she was off over the known and unknown regions of Africa!

It may be interesting to know what had happened to the famous snuff-box after its fall.

It had fallen in the Rue de Rivoli, opposite No. 200, when the street was deserted. In the morning it was picked up by an honest sweeper, who took it to the prefecture of police.

There it was at first supposed to be an infernal machine. And it was untied, examined, and opened with care.

Suddenly a sort of explosion took place. It was a terrific sneeze on the part of the inspector.

The document was then extracted from the snuff-box, and, to the general surprise, read as follows:

"Messrs. Prudent and Evans, president and secretary of the Weldon Institute, Philadelphia, have been carried off in the aeronef Albatross belonging to Robur the engineer.

"Please inform our friends and acquaintances."

"P. and P. E."

Thus was the strange phenomenon at last explained to the people of the two worlds. Thus was peace given to the scientists of the numerous observatories on the surface of the terrestrial globe.

CHAPTER XV

A Skirmish In Dahomey

AT this point in the circumnavigatory voyage of the Albatross it is only natural that some such questions as the following should have been asked. Who was this Robur, of whom up to the present we know nothing but the name? Did he pass his life in the air? Did his aeronef never rest? Had he not some retreat in some inaccessible spot, to which, if he had need of repose or revictualing, he

could betake himself? It would be very strange if it were not so. The most powerful flyers have always an eyrie or nest somewhere.

And what was the engineer going to do with his prisoners? Was he going to keep them in his power and condemn them to perpetual aviation? Or was he going to take them on a trip over Africa, South America, Australasia, the Indian Ocean, the Atlantic and the Pacific, to convince them against their will, and then dismiss them with, "And now, gentlemen, I hope you will believe a little more in heavier than air?"

To these questions it is now impossible to reply. They are the secrets of the future. Perhaps the answers will be revealed.

Anyhow the bird-like Robur was not seeking his nest on the northern frontier of Africa. By the end of the day he had traversed Tunis from Cape Bon to Cape Carthage, sometimes hovering, and sometimes darting along at top speed. Soon he reached the interior, and flew down the beautiful valley of Medjeida above its yellow stream hidden under its luxuriant bushes of cactus and oleander; and scared away the hundreds of parrots that perch on the telegraph wires and seem to wait for the messages to pass to bear them away beneath their wings.

Two hours after sunset the helm was put up and the Albatross bore off to the southeast; and on the morrow, after clearing the Tell Mountains, she saw the rising of the morning star over the sands of the Sahara.

On the 30th of July there was seen from the aeronef the little village of Geryville, founded like Laghouat on the frontier of the desert to facilitate the future conquest of Kabylia. Next, not without difficulty, the peaks of Stillero were passed against a somewhat boisterous wind. Then the desert was crossed, sometimes leisurely over the Koars or green oases, sometimes at terrific speed that far outstripped the flight of the vultures. Often the crew had to fire into the flocks of these birds which, a dozen or so at a time, fearlessly hurled themselves on to the aeronef to the extreme terror of Frycollin.

But if the vultures could only reply with cries and blows of beaks and talons, the natives, in no way less savage, were not sparing of their musket-shots, particularly when crossing the Mountain of Sel, whose green and violet slope bore its cape of white. Then the Albatross was at last over the grand Sahara; and at once she rose into the higher zones so as to escape from a simoom which was sweeping a wave of ruddy sand along the surface of the ground like a bore on the surface of the water.

Then the desolate table-lands of Chetka scattered their ballast in blackish waves up to the fresh and verdant valley of Ain-Massin. It is difficult to conceive the variety of the territories which could be seen at one view. To the green hills covered with trees and shrubs there succeeded long gray undulations draped like the folds of an Arab burnous and broken in picturesque masses. In the distance could be seen the palms with their torrential waters, their forests of palm-trees, and blocks of small houses grouped on a hill around a mosque, among them Metilli, where there vegetates a religious chief, the grand marabout, Sidi Chick.

Before night several hundred miles had been accomplished above a flattish country ridged occasionally with large sand-hills. If the Albatross had

halted, she would have come to the earth in the depths of the Wargla oasis hidden beneath an immense forest of palm-trees. The town was clearly enough displayed with its three distinct quarters, the ancient palace of the Sultan, a kind of fortified Kasbah, houses of brick which had been left to the sun to bake, and artesian wells sunk in the valley where the aeronef could have renewed her water supply. But, thanks to her extraordinary speed, the waters of the Hydaspes taken in the vale of Cashmere still filled her tanks in the center of the African desert.

Was the Albatross seen by the Arabs, the Mozabites, and the negroes who share amongst them the town of Wargla? Certainly, for she was saluted with many hundred gunshots, and the bullets fell back before they reached her.

Then came the night, that silent night in the desert of which Felicien David has so poetically told us the secrets.

During the following hours the course lay south-westerly, cutting across the routes of El Golea, one of which was explored in 1859 by the intrepid Duvoyrier.

The darkness was profound. Nothing could be seen of the Trans-Saharan Railway constructing on the plans of Duponchel—a long ribbon of iron destined to bring together Algiers and Timbuctoo by way of Laghouat and Gardaia, and destined eventually to run down into the Gulf of Guinea.

Then the Albatross entered the equatorial region below the tropic of Cancer. Six hundred miles from the northern frontier of the Sahara she crossed the route on which Major Laing met his death in 1846, and crossed the road of the caravans from Morocco to the Soudan, and that part of the desert swept by the Tuaregs, where could be heard what is called "the song of the sand," a soft and plaintive murmur that seems to escape from the ground.

Only one thing happened. A cloud of locusts came flying along, and there fell such a cargo of them on board as to threaten to sink the ship. But all hands set to work to clear the deck, and the locusts were thrown over except a few hundreds kept by Tapage for his larder. And he served them up in so succulent a fashion that Frycollin forgot for the moment his perpetual trances and said, "These are as good as prawns."

The aeronef was then eleven hundred miles from the Wargla oasis and almost on the northern frontier of the Soudan. About two o'clock in the afternoon a city appeared in the bend of a large river. The river was the Niger. The city was Timbuctoo.

If, up to then, this African Mecca had only been visited by the travelers of the ancient world, Batouta, Khazan, Imbert, Mungo Park, Adams, Laing, Caillé, Barth, Lenz, on that day by a most singular chance, the two Americans could boast of having seen, heard, and smelt it, on their return to America—if they ever got back there.

Of having seen it, because their view included the whole triangle of three or four miles in circumference; of having heard it, because the day was one of some rejoicing and the noise was terrible; of having smelt it, because the olfactory nerve could not but be very disagreeably affected by the odors of the Youbou-Kamo square, where the meat-market stands close to the palace of the ancient Somai kings.

The engineer had no notion of allowing the presi-

dent and secretary of the Weldon Institute to be ignorant that they had the honor of contemplating the Queen of the Soudan, now in the power of the Tuaregs of Taganet.

"GENTLEMEN, Timbuctoo!" he said, in the same tone as twelve days before he had said, "Gentlemen, India!"

Then he continued, "Timbuctoo is an important city of from twelve to thirteen thousand inhabitants, formerly illustrious in science and art. Perhaps you would like to stay there for a day or two?"

Such a proposal could only have been made ironically. "But," continued he, "it would be dangerous among the Negroes, Berbers, and Foullanes who occupy it—particularly as our arrival in an aeronef might prejudice them against you."

"Sir," said Phil Evans, in the same tone, "for the pleasure of leaving you we would willingly risk an unpleasant reception from the natives. Prison for prison, we would rather be in Timbuctoo than on the Albatross."

"That is a matter of taste," answered the engineer. "Anyhow, I shall not try the adventure, for I am responsible for the safety of the guests who do me the honor to travel with me."

"And so," said Uncle Prudent, explosively, "you are not content with being our jailer, but you insult us."

"Oh! a little irony, that is all!"

"Are there any weapons on board?"

"Oh! quite an arsenal."

"Two revolvers will do, if I hold one and you the other."

"A duel!" exclaimed Robur, "a duel, which would perhaps cause the death of one of us."

"Which certainly would cause it."

"Indeed! No, Mr. President of the Weldon Institute, I very much prefer keeping you alive."

"To be sure of living yourself. That is wise."

"Wise or not, it suits me. You are at liberty to think as you like, and to complain to those who have the power to help you—if you can."

"And that we have done, Mr. Robur."

"Indeed!"

"Was it so difficult when we were crossing the inhabited part of Europe to drop a letter overboard?"

"Did you do that?" said Robur, in a paroxysm of rage.

"And if we have done it?"

"If you have done it—you deserve——"

"What, sir?"

"To follow your letter overboard."

"Throw us over, then. We did do it."

Robur stepped towards them. At a gesture from him Tom Turner and some of the crew ran up. The engineer was seriously tempted to put his threat into execution, and, fearful perhaps of yielding to it, he precipitately rushed into his cabin.

"Good!" exclaimed Phil Evans.

"And what he dare not do," said Uncle Prudent, "I will do! Yes, I will do it!"

At the moment, the population of Timbuctoo were crowding into the squares and roads and the terraces built like amphitheaters. In the rich quarters of Sankere and Sarahama, as in the miserable huts at Raguidi, the priests from the minarets were thundering their loudest maledictions against the aerial monster. These were more harmless than the rifle-bul-

lets; though assuredly if the aeronef had come to earth she would have certainly been torn to pieces.

For some miles noisy flocks of storks, francolins, and ibises escorted the Albatross and tried to race her, but in her rapid flight she soon distanced them.

The evening came. The air was troubled by the roarings of the numerous flocks of elephants and buffaloes which wander over this land, whose fertility is simply marvelous. For forty-eight hours the whole of the region between the prime meridian and the second degree, in the bend of the Niger, was viewed from the Albatross.

If a geographer had only such an apparatus at his command, with what facility could he map the country, note the elevations, fix the courses of the rivers and their affluents, and determine the positions of the towns and villages! There would then be no huge blanks on the map of Africa, no dotted lines, no vague designations which are the despair of cartographers.

In the morning of the 11th, the Albatross crossed the mountains of northern Guinea, between the Soudan and the gulf which bears their name. On the horizon was the confused outline of the Kong mountains in the kingdom of Dahomey.

Since the departure from Timbuctoo, Uncle Prudent and Phil Evans noticed that the course had been due south. If that direction was persisted in, they would cross the equator in six more degrees. The Albatross would then abandon the continents and fly not over the Behring Sea, or the Caspian Sea, or the North Sea, or the Mediterranean, but over the Atlantic Ocean.

This look-out was not particularly pleasing to the two friends, whose chances of escape had sunk to below zero.

But the Albatross had slackened speed as though hesitating to leave Africa behind. Was Robur thinking of going back. No; but his attention had been particularly attracted to the country which he was then crossing.

We know—and he knew—that the kingdom of Dahomey is one of the most powerful on the West Coast of Africa. Strong enough to hold its own with its neighbor Ashantee, its area is somewhat small, being contained within three hundred and sixty leagues from north to south, and one hundred and eighty from east to west. But its population numbers some seven or eight hundred thousand, including the neighboring independent territories of Whydah and Ardah.

If Dahomey is not a large country, it is often talked about. It is celebrated for the frightful cruelties which signalize its annual festivals, and by its human sacrifices—fearful hecatombs intended to honor the sovereign it has lost and the sovereign who has succeeded him. It is even a matter of politeness when the King of Dahomey receives a visit from some high personage or some foreign ambassador to give him a surprise present of a dozen heads, cut off in his honor by the minister of justice, the "minghan," who is wonderfully skillful in that branch of his duties.

When the Albatross came flying over Dahomey the old King Bahadou had just died, and the whole population was proceeding to the enthroning of his successor. Hence there was great agitation all over the country, and it did not escape Robur that everybody was on the move.

Long lines of Dahomians were hurrying along the roads from the country into the capital, Abomey. Well kept roads radiating among vast plains clothed with giant trees, immense fields of manioc, magnificent forests of palms, cocoa-trees, mimosas, orange-trees, mango-trees—such was the country whose perfumes mounted to the Albatross, while many parrots and cardinals swarmed among the trees.

The engineer, leaning over the rail, seemed deep in thought, and exchanged but a few words with Tom Turner. It did not look as though the Albatross had attracted the attention of those moving masses, which were often invisible under the impenetrable roof of trees. This was doubtless due to her keeping at a good altitude amid a bank of light cloud.

About eleven o'clock in the morning the capital was sighted, surrounded by its walls, defended by a fosse measuring twelve miles round, with wide, regular streets on the flat plain, and a large square on the northern side occupied by the king's palace. This huge collection of buildings is commanded by a terrace not far from the place of sacrifice. During the festival days it is from this high terrace that they throw the prisoners tied up in wicker baskets, and it can be imagined with what fury these unhappy wretches are cut in pieces.

In one of the courtyards which divide the king's palace there were drawn up four thousand warriors, one of the contingents of the royal army—and not the least courageous one.

If it is doubtful that there are any Amazons on the river of that name, there is no doubt of there being Amazons in Dahomey. Some have a blue shirt with a blue or red scarf, with white-and-blue striped trousers and a white cap; others, the elephant-huntresses, have a heavy carbine, a short-bladed dagger, and two antelope horns fixed to their heads by a band of iron. The artillery-women have a blue-and-red tunic, and, as weapons, blunderbusses and old cast cannons; and another brigade, consisting of vestal virgins pure as Diana, have blue tunics and white trousers. If we add to these Amazons five or six thousand men in cotton drawers and shirts, with a knotted tuft to increase their stature, we shall have passed in review the Dahomian army.

Abomey on this day was deserted. The sovereign, the royal family, the masculine and feminine army, and the population had all gone out of the capital to a vast plain a few miles away surrounded by magnificent forests.

On this plain the recognition of the new king was to take place. Here it was that thousands of prisoners taken during recent razzias were to be immolated in his honor.

It was about two o'clock when the Albatross arrived over the plain and began to descend among the clouds which still hid her from the Dahomians.

There were sixteen thousand people at least come from all parts of the kingdom, from Whydah, and Kerapay, and Aradrah, and Tombory, and the most distant villages.

The new king—a sturdy fellow named Bou-Nadi—some five-and-twenty years old, was seated on a hillock shaded by a group of wide-branched trees. Before him stood his male army, his Amazons, and his people.

At the foot of the mound, fifty musicians were playing on their barbarous instruments, elephants' tusks giving forth a husky note, deerskin drums,

calabashes, guitars, bells struck with an iron clapper, and bamboo flutes, whose shrill whistle was heard over all. Every other second came discharges of guns and blunderbusses, discharges of cannons with the carriages jumping so as to imperil the lives of the artillery-women, and a general uproar so intense that even the thunder would be unheard amidst it.

In one corner of the plain, under a guard of soldiers, were grouped the prisoners destined to accompany the defunct king into the other world. At the obsequies of Ghozo, the father of Bahadou, his son had dispatched three thousand, and Bou-Nadi could not do less than his predecessor. For an hour there was a series of discourses, harangues, palavers and dances, executed not only by professionals, but by the Amazons, who displayed much martial grace.

But the time for the hecatomb was approaching. Robur, who knew the customs of Dahomey, did not lose sight of the men, women, and children reserved for butchery.

The minghan was standing at the foot of the hillock. He was brandishing his executioner's sword, with its curved blade surmounted by a metal bird, whose weight rendered the cut more certain.

This time he was not alone. He could not have performed the task. Near him were grouped a hundred executioners, all accustomed to cut off heads at one blow.

The Albatross came slowly down in an oblique direction. Soon she emerged from the bed of clouds which hid her till she was within three hundred feet of the ground, and for the first time she was visible from below.

Contrary to what had hitherto happened, the savages saw in her a celestial being come to render homage to King Bahadou. The enthusiasm was indescribable, the shouts were interminable, the prayers were terrific—prayers addressed to this supernatural hippogriff, which had doubtless come to take the king's body to the higher regions of the Dahomian heaven.

And now the first head fell under the minghan's sword, and the prisoners were led up in hundreds before the horrible executioners.

Suddenly a gun was fired from the Albatross. The minister of justice fell dead on his face.

"Well aimed, Tom!" said Robur.

His comrades, armed as he was, stood ready to fire when the order was given.

But a change came over the crowd below. They had understood. The winged monster was not a friendly spirit, it was a hostile spirit. And after the fall of the minghan, loud shouts for revenge arose on all sides. Almost immediately a fusillade resounded over the plain.

These menaces did not prevent the Albatross from descending boldly to within a hundred and fifty feet of the ground. Uncle Prudent and Phil Evans, whatever were their feelings towards Robur, could not help joining him in such a work of humanity.

"Let us free the prisoners!" they shouted.

"That is what I am going to do!" said the engineer.

And the magazine rifles of the Albatross in the hands of the colleagues, as in the hands of the crew, began to rain down the bullets, of which not one was lost in the masses below. And the little gun shot forth its shrapnel, which really did marvels.

The prisoners, although they did not understand how the help had come to them, broke their bonds,

while the soldiers were firing at the aeronef. The stern screw was shot through by a bullet, and a few holes were made in the hull. Frycollin, crouching in his cabin, received a graze from a bullet that came through the deck-house.

"Ah! They will have them!" said Tom Turner. And, rushing to the magazine, he returned with a dozen dynamite cartridges, which he distributed to the men. At a sign from Robur, these cartridges were fired at the hillock, and as they reached the ground, exploded like so many small shells.

The king and his court and army and people were stricken with fear at the turn things had taken. They fled under the trees, while the prisoners ran off without anybody thinking of pursuing them.

In this way was the festival interfered with. And in this way did Uncle Prudent and Phil Evans recognize the power of the aeronef and the services it could render to humanity.

Soon the Albatross rose again to a moderate height, and passing over Whydah lost to view this savage coast which the southwest wind hems round with an inaccessible surf. And she flew out over the Atlantic.

CHAPTER XVI Over the Atlantic

YES, the Atlantic! The fears of the two colleagues were realized; but it did not seem as though Robur had the least anxiety about venturing over this vast ocean. Both he and his men seemed quite unconcerned about it, and had gone back to their stations.

Whither was the Albatross bound? Was she going more than round the world as Robur had said? Even if she were, the voyage must end somewhere. That Robur had spent his life in the air on board the aeronef and never came to the ground was impossible. How could he make up his stock of provisions and the materials required for working his machines? He must have some retreat, some harbor of refuge in some unknown and inaccessible spot where the Albatross could revictual. That he had broken off all connection with the inhabitants of the land might be true, but with every point on the surface of the earth, certainly not.

That being the case, where was this point? How had the engineer come to choose it? Was he expected by a little colony of which he was the chief? Could he there find a new crew?

What means had he that he should be able to build so costly a vessel as the Albatross and keep her building secret? It is true his living was not expensive. But, finally, who was this Robur? Where did he come from? What had been his history? Here were riddles impossible to solve; and Robur was not the man to assist willingly in their solution.

It is not to be wondered at that these insoluble problems drove the colleagues almost to frenzy. To find themselves whipped off into the unknown without knowing what the end might be, doubting even if the adventure would end, sentenced to perpetual aviation, was this not enough to drive the president and secretary of the Weldon Institute to extremities.

Meanwhile the Albatross drove along above the Atlantic, and in the morning when the sun rose there was nothing to be seen but the circular line where water met sky. Not a spot of land was in sight in

this huge field of vision. Africa had vanished beneath the northern horizon.

When Frycollin ventured out of his cabin and saw all this water beneath him, fear took possession of him.

Of the hundred and forty-five million square miles of which the area of the world's waters consists, the Atlantic claims about a quarter; and it seemed as though the engineer was in no hurry to cross it. There was now no going at full speed, none of the hundred and twenty miles an hour at which the Albatross had flown over Europe. Here, where the southwest winds prevail, the wind was against them, and though it was not very strong, it would not do to defy it. And the Albatross was sent along at a moderate speed, which, however, easily outstripped that of the fastest mail-boat.

On the 13th of July she crossed the line, and the fact was duly announced to the crew. It was then that Uncle Prudent and Phil Evans ascertained that they were bound for the southern hemisphere. The crossing of the line took place without any of the Neptunian ceremonies that still linger on certain ships. Tapage was the only one to mark the event, and he did so by pouring a pint of water down Frycollin's neck.

On the 18th of July, when beyond the tropic of Capricorn, another phenomenon was noticed, which would have been somewhat alarming to a ship on the sea. A strange succession of luminous waves widened out over the surface of the ocean with a speed estimated at quite sixty miles an hour. The waves ran along at about eighty feet from one another, tracing two furrows of light. As night fell, a bright reflection rose even to the Albatross, so that she might have been taken for a flaming aerolite. Never before had Robur sailed on a sea of fire—a fire without heat—which there was no need to flee from as it mounted upwards into the sky.

The cause of this light must have been electricity; it could not be attributed to a bank of fish spawn, nor to a crowd of those animalcules that give phosphorescence to the sea, and this showed that the electrical tension of the atmosphere was considerable.

In the morning an ordinary ship would probably have been lost. But the Albatross played with the winds and waves like the powerful bird whose name she bore. If she did not walk on their surface like the petrels, she could, like the eagles, find calm and sunshine in the higher zones.

They had now passed the forty-seventh parallel. The day was but little over seven hours long, and would become even less as they approached the Pole.

About one o'clock in the afternoon, the Albatross was floating along in a lower current than usual, about a hundred feet from the level of the sea. The air was calm, but in certain parts of the sky were thick black clouds, massed in mountains on their upper surface, and ruled off below by a sharp horizontal line. From these clouds a few lengthy protuberances escaped, and their points as they fell seemed to draw up hills of foaming water to meet them.

Suddenly the water shot up in the form of a gigantic hour-glass, and the Albatross was enveloped in the eddy of an enormous waterspout, while twenty others, black as ink, raged around her. Fortunately the gyratory movement of the water was opposite to that of the ascension screws, otherwise the aeronef would have been hurled into the sea. But

she began to spin round on herself with frightful rapidity.

THE danger was immense, and perhaps impossible to escape, for the engineer could not get through the spout which sucked him back in defiance of his propellers. The men, thrown to the ends of the deck by centrifugal force, were grasping the rail to save themselves from being shot off.

"Keep cool!" shouted Robur.

They wanted all their coolness, and their patience, too.

Uncle Prudent and Phil Evans, who had just come out of their cabin, were hurled back at the risk of flying overboard.

As she spun, the Albatross was carried along by the spout, which pirouetted along the waves with a speed enough to make the helices jealous. And if she escaped from the spout she might be caught by another, and jerked to pieces with the shock.

"Get the gun ready!" said Robur.

The order was given to Tom Turner, who was crouching behind the swivel amidships where the effect of the centrifugal force was least felt. He understood. In a moment he had opened the breech and slipped in a cartridge from the ammunition-box at hand. The gun went off, and the waterspouts collapsed, and with them vanished the platform of cloud they seemed to bear above them.

"Nothing broken on board?" asked Robur.

"No," answered Tom Turner. "But we don't want to have another game of humming-top like that!"

For ten minutes or so the Albatross had been in extreme peril. Had it not been for her extraordinary strength of build she would have been lost.

During this passage of the Atlantic many were the hours whose monotony was unbroken by any phenomenon whatever. The days grew shorter and shorter, and the cold became keen. Uncle Prudent and Phil Evans saw little of Robur. Seated in his cabin, the engineer was busy laying out his course and marking it on his maps, taking his observations whenever he could, recording the readings of his barometers, thermometers, and chronometers, and making full entries in his log-book.

The colleagues wrapped themselves well up and eagerly watched for the sight of land to the southward. At Uncle Prudent's request, Frycollin tried to pump the cook as to whither the engineer was bound. But what reliance could be placed on the information given by this Gascon? Sometimes Robur was an ex-minister of the Argentine Republic, sometimes a lord of the Admiralty, sometimes an ex-President of the United States, sometimes a Spanish general temporarily retired, sometimes a Viceroy of the Indies who had sought a more elevated position in the air. Sometimes he possessed millions, thanks to successful razzias in the aeronef, and he had been proclaimed for piracy. Sometimes he had been ruined by making the aeronef, and had been forced to fly aloft to escape from his creditors. As to knowing if he were going to stop anywhere, no! But if he thought of going to the moon, and found there a convenient anchorage, he would anchor there! "Eh! Fry! my boy! That would just suit you to see what was going on up there."

"I shall not go! I refuse!" said the negro, who took all these things seriously.

"And why, Fry, why? You might get married to some pretty bouncing Lunarian!"

Frycollin reported this conversation to his master, who saw it was evident that nothing was to be learned about Robur. And so he thought still more of how he could have his revenge on him.

"Phil," said he one day, "is it quite certain that escape is impossible?"

"Impossible."

"Be it so! But a man is always his own property; and if necessary, by sacrificing his life——"

"If we are to make that sacrifice," said Phil Evans, "the sooner the better. It is almost time to end this. Where is the Albatross going? Here we are flying obliquely over the Atlantic, and if we keep on we shall get to the coast of Patagonia or Tierra del Fuego. And what are we to do then? Get into the Pacific, or go to the continent at the South Pole? Everything is possible with this Robur. We shall be lost in the end. It is thus a case of legitimate self-defence, and if we must perish——"

"Which we shall not do," answered Uncle Prudent, "without being avenged, without annihilating this machine and all she carries."

The colleagues had reached a stage of impotent fury, and were prepared to sacrifice themselves if they could only destroy the inventor and his secret. A few months only would then be the life of this prodigious aeronef, of whose superiority in aerial locomotion they had such convincing proofs! The idea took such hold of them that they thought of nothing else but how to put it into execution. And how? By seizing on some of the explosives on board and simply blowing her up. But could they get at the magazine!

Fortunately for them, Frycollin had no suspicion of their scheme. At the thought of the Albatross exploding in midair, he would not have shrunk from betraying his master.

It was on the 23d of July that the land reappeared in the southwest near Cape Virgins at the entrance of the Straits of Magellan. Under the fifty-second parallel at this time of year the night was eighteen hours long and the temperature was six below freezing.

At first the Albatross, instead of keeping on to the south, followed the windings of the coast as if to enter the Pacific. After passing Lomas Bay, leaving Mount Gregory to the north and the Brecknocks to the west, they sighted Puerto Arena, a small Chilean village, at the moment the churchbells were in full swing; and a few hours later they were over the old settlement at Port Famine.

If the Patagonians, whose fires could be seen occasionally, were really above the average in stature, the passengers in the aeronef were unable to say, for to them they seemed to be dwarfs. But what a magnificent landscape opened around during these short hours of the southern day! Rugged mountains, peaks eternally capped with snow, with thick forests rising on their flanks, inland seas, bays deep set amid the peninsulas, and islands of the Archipelago. Clarence Island, Dawson Island, and the Land of Desolation, straits and channels, capes and promontories, all in inextricable confusion, and bound by the ice in one solid mass from Cape Forward, the most southerly point of the American continent, to Cape Horn the most southerly point of the New World.

When she reached Port Famine, the Albatross

resumed her course to the south. Passing between Mount Tarn on the Brunswick Peninsula and Mount Graves, she steered for Mount Sarmiento, an enormous peak wrapped in snow, which commands the Straits of Magellan, rising six thousand four hundred feet from the sea. And now they were over the land of the Fuegians, Tierra del Fuego, the land of fire. Six months later, in the height of summer, with days from fifteen to sixteen hours long, how beautiful and fertile would most of this country be, particularly in its northern portion! Then, all around would be seen valleys and pasturages that could form the feeding-grounds of thousands of animals; then would appear virgin forests, gigantic trees—birches, beeches, ash-trees, cypresses, tree-ferns—and broad plains overrun by herds of guanacos, vicuñas, and rheas, the American ostrich. Now there were armies of penguins and myriads of birds; and when the Albatross turned on her electric lamps the guillemots, ducks, and geese came crowding on board enough to fill Tapage's larder a hundred times and more.

Here was work for the cook, who knew how to bring out the flavor of the game and keep down its peculiar oiliness. And here was work for Frycollin in plucking dozen after dozen of such interesting feathered friends.

That day, as the sun was setting about three o'clock in the afternoon, there appeared in sight a large lake framed in a border of superb forest. The lake was completely frozen over, and a few natives with long snowshoes on their feet were swiftly gliding over it.

At the sight of the Albatross, the Fuegians, overwhelmed with terror, scattered in all directions, and when they could not get away they hid themselves, taking, like the animals, to the holes in the ground.

The Albatross still held her southerly course, crossing the Beagle Channel, and Navarin Island and Wollaston Island, on the shores of the Pacific. Then, having accomplished 4,700 miles since she left Dahomey, she passed the last islands of the Magellanic archipelago, whose most southerly outpost, lashed by the everlasting surf, is the terrible Cape Horn.

CHAPTER XVII

The Shipwrecked Crew

NEXT day was the 24th of July; and the 24th of July in the southern hemisphere corresponds to the 24th of January in the northern. The fifty-sixth degree of latitude had been left behind. The similar parallel in northern Europe runs through Edinburgh.

The thermometer kept steadily below freezing, so that the machinery was called upon to furnish a little artificial heat in the cabins. Although the days begin to lengthen after the 21st of June in the southern hemisphere, yet the advance of the Albatross towards the Pole more than neutralized this increase, and consequently the daylight became very short. There was thus very little to be seen. At night time the cold became very keen; but as there was no scarcity of clothing on board, the colleagues, well wrapped up, remained a good deal on deck thinking over their plans of escape, and watching for an opportunity. Little was seen of Robur; since the high words that had been exchanged in the Timbuctoo country, the engineer had left off speaking to his prisoners.

Frycollin seldom came out of the cook-house, where Tapage treated him most hospitably, on condition that he acted as his assistant. This position was not without its advantages, and the negro, with his master's permission, very willingly accepted it. Shut up in the galley, he saw nothing of what was passing outside, and might even consider himself beyond the reach of danger. He was, in fact, very like the ostrich, not only in his stomach, but in his folly.

But whither went the Albatross? Was she in mid-winter bound for the southern seas or continents round the Pole. In this icy atmosphere, even granting that the elements of the batteries were unaffected by such frost, would not all the crew succumb to a horrible death from the cold? That Robur should attempt to cross the Pole in the warm season was bad enough, but to attempt such a thing in the depth of the winter night would be the act of a madman.

Thus reasoned the President and Secretary of the Weldon Institute, now they had been brought to the end of the continent of the New World, which is still America, although it does not belong to the United States.

What was this intractable Robur going to do? Had not the time arrived for them to end the voyage by blowing up the ship?

It was noticed that during the 24th of July the engineer had frequent consultations with his mate. He and Tom Turner kept constant watch on the barometer—not so much to keep themselves informed of the height at which they were traveling as to be on the look-out for a change in the weather. Evidently some indications had been observed of which it was necessary to make careful note.

Uncle Prudent also remarked that Robur had been taking stock of the provisions and stores, and everything seemed to show that he was contemplating turning back.

"Turning back!" said Phil Evans. "But where to?"

"Where he can reprovision the ship," said Uncle Prudent.

"That ought to be in some lonely island in the Pacific with a colony of scoundrels worthy of their chief."

"That is what I think. I fancy he is going west, and with the speed he can get up it would not take him long to get home."

"But we should not be able to put our plan into execution. If we get there——"

"We shall not get there!"

The colleagues had partly guessed the engineer's intentions. During the day it became no longer doubtful that when the Albatross reached the confines of the Antarctic Sea her course was to be changed. When the ice has formed about Cape Horn the lower regions of the Pacific are covered with ice-fields and icebergs. The floes then form an impenetrable barrier to the strongest ships and the boldest navigators.

Of course, by increasing the speed of her helices the Albatross could clear the mountain of ice accumulated on the ocean as she could the mountains of earth on the polar continent—if it is a continent that forms the cap of the southern pole. But would she attempt it in the middle of the polar night, in an atmosphere of sixty below freezing?

After she had advanced about a hundred miles to the south the Albatross headed westerly, as if for

some unknown island of the Pacific. Beneath her stretched the liquid plain between Asia and America. The waters now had assumed that singular color which has earned for them the name of the Milky Sea. In the half shadow, which the enfeebled rays of the sun were unable to dissipate, the surface of the Pacific was a milky white. It seemed like a vast snowfield, whose undulations were imperceptible at such a height. If the sea had been solidified by the cold, and converted into an immense icefield, its aspect could not have been much different. They knew that the phenomenon was produced by myriads of luminous particles or phosphorescent corpuscles; but it was surprising to come across such an opalescent mass beyond the limits of the Indian Ocean.

Suddenly the barometer fell after keeping somewhat high during the earlier hours of the day. Evidently the indications were such as a shipmaster might feel anxious at, though the master of an aeronef might despise them. There was every sign that a terrible storm had recently raged in the Pacific.

It was one o'clock in the afternoon when Tom Turner came up to the engineer and said, "Do you see that black spot on the horizon, sir—there away to due north of us? That is not a rock?"

"No, Tom; there is no land out there."

"Then it must be a ship or a boat."

Uncle Prudent and Phil Evans, who were in the bow, looked in the direction pointed out by the mate.

Robur asked for the glass and attentively observed the object.

"It is a boat," said he, "and there are some men in it."

"Shipwrecked?" asked Tom.

"Yes! They have had to abandon their ship, and knowing nothing of the nearest land, are perhaps dying of hunger and thirst! Well, it shall not be said that the Albatross did not come to their help!"

The orders were given, and the aeronef began to sink towards the sea. At three hundred yards from it the descent was stopped, and the propellers drove ahead full speed towards the north.

It was a boat. Her sail flapped against the mast as she rose and fell on the waves. There was no wind, and she was making no progress. Doubtless there was no one on board with strength enough left to work the oars. In the boat were five men asleep or helpless, if they were not dead.

The Albatross had arrived above them, and slowly descended. On the boat's stern was the name of the ship to which she belonged—the *Jeannette* of Nantes.

"Hallo, there!" shouted Turner, loud enough for the men to hear, for the boat was only eighty feet below him.

There was no answer. "Fire a gun!" said Robur.

The gun was fired and the report rang out over the sea.

One of the men looked up feebly. His eyes were haggard and his face was that of a skeleton. As he caught sight of the Albatross he made a gesture as of fear.

"Don't be afraid," said Robur in French, "we have come to help you. Who are you?"

"We belong to the barque *Jeannette*, and I am the mate. We left her a fortnight ago as she was sinking. We have no water and no food."

The four other men had now sat up. Wan and exhausted, in a terrible state of emaciation, they lifted their hands towards the Albatross.

"Look out!" shouted Robur.

A line was let down, and a pail of fresh water was lowered into the boat. The men snatched at it and drank it with an eagerness awful to see.

"Bread, bread!" they exclaimed.

Immediately a basket with some food and five pints of coffee descended towards them. The mate with difficulty restrained them in their ravenousness.

"Where are we?" asked the mate at last.

"Fifty miles from the Chili coast and the Chonos Archipelago," answered Robur.

"Thanks. But we are becalmed, and——"

"We are going to tow you."

"Who are you?"

"People who are glad to be of assistance to you," said Robur.

The mate understood that the incognito was to be respected. But had the flying machine sufficient power to tow them through the water?

Yes; and the boat, attached to a hundred feet of rope, began to move off towards the east. At ten o'clock at night the land was sighted—or rather they could see the lights which indicated its position. This rescue from the sky had come just in time for the survivors of the *Jeannette*, and they had good reason to believe it miraculous.

When they had been taken to the mouth of the channel leading among the Chonos Islands, Robur shouted to them to cast off the tow-line. This, with many a blessing to those who had saved them, they did, and the Albatross headed out to the offing.

Certainly there was some good in this aeronef, which could thus help those who were lost at sea! What balloon, perfect as it might be, would be able to perform such a service? And between themselves Uncle Prudent and Phil Evans could not but admit it, although they were quite disposed to deny the evidence of their senses.

CHAPTER XVIII

Over the Volcano

THE sea was as rough as ever, and the symptoms became alarming. The barometer fell several millimeters. The wind came in violent gusts, and then for a moment or so failed altogether. Under such circumstances a sailing vessel would have had two reefs in her topsails and a reef in her foresail. Everything showed that the wind was rising in the northwest. The storm-glass became much troubled and its movements were most disquieting.

At one o'clock in the morning the wind came on again with extreme violence. Although the aeronef was going right in its teeth she was still making progress at a rate of from twelve to fifteen miles an hour. But that was the utmost she could do.

Evidently preparations must be made for a cyclone, a very rare occurrence in these latitudes. Whether it be called a hurricane, as in the Atlantic, a typhoon, as in Chinese waters, a simoom, as in the Sahara, or a tornado, as on the western coast, such a storm is always a gyratory one, and most dangerous for any ship caught in the current which increases from the circumference to the center, and has only one spot of calm, the middle of the vortex.

Robur knew this. He also knew it was best to escape from the cyclone and get beyond its zone of attraction by ascending to the higher strata. Up to then he had always succeeded in doing this, but now he had not an hour, perhaps not a minute, to lose.

In fact the violence of the wind sensibly increased. The crests of the waves were swept off as they rose and blown into white dust on the surface of the sea. It was manifest that the cyclone was advancing with fearful velocity straight towards the regions of the pole.

"Higher!" said Robur.

"Higher it is," said Tom Turner.

An extreme ascensional power was communicated to the aeronef, and she shot up slantingly as if she was traveling on a plane sloping downwards from the southwest. Suddenly the barometer fell more than a dozen millimeters and the Albatross paused in her ascent.

What was the cause of the stoppage? Evidently she was pulled back by the air; some formidable current had diminished the resistance to the screws. When a steamer travels up-stream more work is got out of her screws than when the water is running between the blades. The recoil is then considerable, and may perhaps be as great as the current. It was thus with the Albatross at this moment.

But Robur was not the man to give in. His seventy-four screws, working perfectly together, were driven at their maximum speed. But the aeronef could not escape; the attraction of the cyclone was irresistible. During the few moments of calm she began to ascend, but the heavy pull soon drew her back, and she sank like a ship as she founders.

Evidently if the violence of the cyclone went on increasing, the Albatross would be but as a straw caught in one of those whirlwinds that root up the trees, carry off roofs, and blow down walls.

Robur and Tom could only speak by signs. Uncle Prudent and Phil Evans clung to the rail and wondered if the cyclone was not playing their game in destroying the aeronef and with her the inventor, and with the inventor the secret of his invention.

But if the Albatross could not get out of the cyclone vertically could she not do something else? Could she not gain the center, where it was comparatively calm, and where they would have more control over her? Quite so; but to do this she would have to break through the circular currents which were sweeping her round with them. Had she sufficient mechanical power to escape through them?

Suddenly the upper part of the cloud fell in. The vapor condensed in torrents of rain. It was two o'clock in the morning. The barometer, oscillating over a range of half an inch, had now fallen to 27.91, and to this something should be added on account of the height of the aeronef above the level of the sea.

Strange to say, the cyclone was out of the zone to which such storms are generally restricted, such zone being bounded by the thirtieth parallel of north latitude and the twenty-sixth parallel of south latitude. This may perhaps explain why the eddying storm suddenly turned into a straight one. But what a hurricane! The tempest in Connecticut on the 22nd of March, 1882, could only have been compared to it, and the speed of that was more than three hundred miles an hour.

The Albatross had thus to fly before the wind or rather she had to be left to be driven by the current, from which she could neither mount nor escape. But in following this unchanging trajectory she was bearing due south, towards those polar regions which Robur had endeavored to avoid. And now he was no longer master of her course; she would go where the hurricane took her.

Tom Turner was at the helm, and it required all his skill to keep her straight. In the first hours of the morning—if we can so call the vague tint which began to rise over the horizon—the Albatross was fifteen degrees below Cape Horn; twelve hundred miles more and she would cross the antarctic circle. Where she was, in this month of July, the night lasted nineteen hours and a half. The sun's disk—without warmth, without light—only appeared above the horizon to disappear almost immediately. At the pole the night lengthened into one of a hundred and seventy-nine hours. Everything showed that the Albatross was about to plunge into an abyss.

During the day an observation, had it been possible, would have given $66^{\circ} 40'$ south latitude. The aeronef was within fourteen hundred miles of the pole.

Irresistibly she was drawn towards this inaccessible corner of the globe, her speed eating up, so to speak, her weight, although she weighed less than before, owing to the flattening of the earth at the pole. It seemed as though she could have dispensed altogether with her ascension screws. And soon the fury of the storm reached such a height that Robur thought it best to reduce the speed of her helices as much as possible, so as to avoid disaster. And only enough speed was given to keep the aeronef under control of the rudder.

Amid these dangers, the engineer retained his imperturbable coolness, and the crew obeyed him as if their leader's mind had entered into them. Uncle Prudent and Phil Evans had not for a moment left the deck; they could remain without being disturbed. The air made but slight resistance. The aeronef was like an aerostat, which drifts with the fluid mass in which it is plunged.

Is the domain of the southern pole a continent or an archipelago? Or is it a palæocrystic sea, whose ice melts not even during the long summer? We know not. But what we do know is that the southern pole is colder than the northern one—a phenomenon due to the position of the earth in its orbit during winter in the antarctic regions.*

During this day there was nothing to show that the storm was abating. It was by the seventy-fifth meridian to the west that the Albatross crossed into the circumpolar region. By what meridian would she come out—if she ever came out?

As she descended more to the south the length of the day diminished. Before long she would be plunged in that continuous night which is illuminated only by the rays of the moon or the pale streamers of the aurora. But the moon was then new, and the companions of Robur might see nothing of the regions whose secret has hitherto defied human curiosity.

There was not much inconvenience on board from the cold, for the temperature was not nearly so low as was expected. It seemed as though the hurricane was a sort of Gulf Stream, carrying a certain amount of heat along with it.

Great was the regret that the whole region was in such profound obscurity. Even if the moon had been in full glory but few observations could have been made. At this season of the year an immense blanket of snow, an icy carapace, covers up the polar surface. There was none of that ice "blink" to be

* The Antarctic polar region is a mountainous continent—the South Pole is at an elevation of some 11,000 feet above sea level. Its secret no longer defies human curiosity.

seen, that whitish tint of which the reflection is absent from dark horizons. Under such circumstances how could they distinguish the shape of the ground, the extent of the seas, the position of the islands? How could they recognize the hydrographic network of the country or the orographic configuration, and distinguish the hills and mountains from the icebergs and floes.

A little after midnight an aurora illuminated the darkness. With its silver fringes and spangles radiating over space, it seemed like a huge fan open over half the sky. Its farthest electric effluences were lost in the Southern Cross, whose four bright stars were gleaming overhead. The phenomenon was one of incomparable magnificence, and the light showed the face of the country as a confused mass of white.

It need not be said that they had approached so near to the pole that the compass was constantly affected, and gave no precise indication of the course pursued. Its inclination or dip was such that at one time Robur felt certain they were passing over the magnetic pole discovered by Sir James Ross. And an hour later, in calculating the angle the needle made with the vertical, he exclaimed: "The South Pole is beneath us!"

A white cap appeared, but nothing could be seen of what it hid under its ice.

A few minutes afterwards the aurora died away, and the point where all the world's meridians cross is still to be discovered.*

If Uncle Prudent and Phil Evans wished to bury in the most mysterious solitudes the aeronef and all she bore, the moment was propitious. If they did not do so it was doubtless because the explosive they required was still denied to them.

The hurricane still raged, and swept along with such rapidity that had a mountain been met with, the aeronef would have been dashed to pieces like a ship on a lee shore. Not only had the power gone to steer her horizontally, but the control of her elevation had also vanished.

And it was not unlikely that mountains did exist in these antarctic lands. Any instant a shock might happen which would destroy the Albatross. Such a catastrophe became more probable as the wind shifted more to the east after they passed the prime meridian. Two luminous points then showed themselves ahead of the Albatross. These were the two volcanoes of the Ross Mountains—Erebus and Terror. Was the Albatross to be shriveled up in their flames like a gigantic butterfly?

An hour of intense excitement followed. One of the volcanoes, Erebus, seemed to be rushing at the aeronef, which could not move from the hurricane. The cloud of flame grew as they neared it. A network of fire barred their road. A brilliant light shone round over all. The figures on board stood out in the bright light as if come from another world. Motionless, without a sound or a gesture, they waited for the terrible moment when the furnace would wrap them in its fires.

But the storm that bore the Albatross saved them from such a fearful fate. The flames of Erebus were blown down by the hurricane as it passed, and the Albatross flew over unhurt. She swept through a hail of ejected material, which was fortunately kept at bay by the centrifugal action of the ascension

screws. And she harmlessly passed over the crater while it was in full eruption.

An hour afterwards the horizon hid from their view the two colossal torches which light the confines of the world during the long polar night.

At two o'clock in the morning Balleny Island was sighted on the coast of Discovery Land, though it could not be recognized because it was bound to the mainland by a cement of ice.

And the Albatross emerged from the polar circle on the hundred and seventy-fifth meridian. The hurricane had carried her over the icebergs and ice-floes, against which she was in danger of being dashed a hundred times or more. She was not in hands of the helmsman, but in the hand of God—and God is a good pilot.

The aeronef sped along to the north, and at the sixtieth parallel the storm showed signs of dying away. Its violence sensibly diminished. The Albatross began to come under control again. And, what was a great comfort, she had again entered the lighted regions of the globe; and the day reappeared about eight o'clock in the morning.

Robur had been carried by the storm into the Pacific over the polar region, accomplishing four thousand three hundred and fifty miles in nineteen hours, or about three miles a minute, a speed almost double that which the Albatross was equal to with her propellers under ordinary circumstances. But he did not know where he then was owing to the disturbance of the needle in the neighborhood of the magnetic pole, and he would have to wait till the sun shone out under convenient conditions for observation. Unfortunately, heavy clouds covered the sky all that day and the sun did not appear.

This was a disappointment more keenly felt as both propelling screws had sustained damage during the tempest. Robur, much disconcerted at this accident, could only advance at a moderate speed during this day, and when he passed over the antipodes of Paris was only going about eighteen miles an hour. It was necessary not to aggravate the damage to the screws, for if the propellers were rendered useless, the situation of the aeronef above the vast seas of the Pacific would be a very awkward one. And the engineer began to consider if he could not effect his repairs on the spot, so as to make sure of continuing his voyage.

In the morning of the 27th of July, about seven o'clock, land was sighted to the north. It was soon seen to be an island. But which island was it of the thousands that dot the Pacific? However, Robur decided to stop at it without landing. He thought that he could repair damages during the day and start in the evening.

The wind had died away completely, and this was a favorable circumstance for the maneuver he desired to execute. At least, if she did not remain stationary, the Albatross would be carried he knew not where.

A cable one hundred and fifty feet long with an anchor at the end was dropped overboard. When the aeronef reached the shore of the island the anchor dragged up over the first few rocks and then got firmly fixed between two large blocks. The cable then stretched to full length under the influence of the suspensory screws, and the Albatross remained motionless, riding like a ship in a roadstead.

It was the first time she had been fastened to the earth since she left Philadelphia.

* This is so no longer. It was reached by the Scandinavian expedition under Amundsen and the unfortunate English expedition under Scott in 1911.

CHAPTER XIX

Anchored At Last

WHEN the Albatross was high in the air the island could be seen to be of moderate size. But on what parallel was it situated? What meridian ran through it? Was it an island in the Pacific, in Australasia, or in the Indian Ocean? When the sun appeared, and Robur had taken his observations, they would know; but although they could not trust to the indications of the compass there was reason to think they were in the Pacific.

At this height—one hundred and fifty feet—the island which measured about fifteen miles round, was like a three-pointed star in the sea.

Off the southwest point was an islet and a range of rocks. On the shore there were no tide-marks, and this tended to confirm Robur in his opinion as to his position, for the ebb and flow are almost imperceptible in the Pacific.

At the northwest point there was a conical mountain about two hundred feet high.

No natives were to be seen, but they might be on the opposite coast. In any case, if they had perceived the aeronef, terror had made them either hide themselves or run away.

The Albatross had anchored on the southwest point of the island. Not far off, down a little creek, a small river flowed in among the rocks. Beyond were several winding valleys; trees of different kinds; and birds—partridges and bustards—in great numbers. If the island was not inhabited, it was habitable. Robur might surely have landed on it; if he had not done so it was probably because the ground was uneven and did not offer a convenient spot to beach the aeronef.

While he was waiting for the sun, the engineer began the repairs he reckoned on completing before the day was over. The ascension screws were undamaged and had worked admirably amid all the violence of the storm, which, as we have said, had considerably lightened their work. At this moment half of them were in action, enough to keep the Albatross fixed to the shore by the taut cable. But the two propellers had suffered, and more than Robur had thought. Their blades would have to be adjusted and the gearing by which they received their rotatory movement, would have to be seen to.

It was the screw at the bow which was first attacked under Robur's superintendence. It was the best to commence with, in case the Albatross had to leave before the work was finished. With this one propeller he could easily keep a proper course.

Meanwhile Uncle Prudent and his colleague, after walking about the deck, had sat down aft. Frycollin was strangely reassured. What a difference! To be suspended only one hundred and fifty feet from the ground!

The work was only interrupted for a moment while the elevation of the sun above the horizon allowed Robur to take an horary angle, so that at the time of its culmination, he could calculate his position.

The result of the observations, taken with the greatest exactitude, was as follows:

Longitude, 176 deg. 10 min. west.

Latitude, 44 deg. 25 min. south.

This point on the map answered to the position of the Chatham Islands, and particularly of Pitt Island, one of the group.

"That is nearer than I supposed," said Robur to Tom Turner.

"How far off are we?"

"Forty-six degrees south of X Island, or two thousand eight hundred miles."

"All the more reason to get our propellers into order," said the mate. "We may have the wind against us this passage, and with the little stores we have left we ought to get to X as soon as possible."

"Yes, Tom, and I hope to get under way to-night, even if I go with one screw, and put the other to rights on the voyage."

"Mr. Robur," said Tom, "what is to be done with those two gentlemen and their servant?"

"Do you think they would complain if they became colonists of X Island?"

BUT where was this X? It was an island lost in the immensity of the Pacific Ocean between the Equator and the Tropic of Cancer—an island most appropriately named by Robur in this algebraic fashion. It was in the north of the South Pacific, a long way out of the route of inter-oceanic communication. There it was that Robur had founded his little colony, and there the Albatross rested when tired with her flight. There she was provisioned for all her voyages. In X Island, Robur, a man of immense wealth, had established a ship-yard, in which he built his aeronef. There he could repair it, and even rebuild it. In his warehouses were materials and provisions of all sorts stored for the fifty inhabitants who lived on the island.

When Robur had doubled Cape Horn a few days before, his intention had been to regain X Island by crossing the Pacific obliquely. But the cyclone had seized the Albatross, and the hurricane had carried her away to the south. In fact, he had been brought back to much the same latitude as before, and if his propellers had not been damaged, the delay would have been of no importance.

His object was therefore to get back to X Island; but as the mate had said, the voyage would be a long one, and the winds would probably be against them. The mechanical power of the Albatross was, however, quite equal to taking her to her destination, and under ordinary circumstances she would be there in three or four days.

Hence Robur's resolve to anchor on the Chatham Islands. There was there every opportunity for repairing at least the bow-screw. He had no fear that if the wind were to rise he would be driven to the south instead of to the north. When night came the repairs would be finished, and he would have to maneuver so as to weigh anchor. If it were too firmly fixed in the rocks, he could cut the cable and resume his flight towards the equator.

The crew of the Albatross, knowing there was no time to lose, set to work vigorously.

While they were busy in the bow of the aeronef, Uncle Prudent and Phil Evans held a little conversation together, which had exceptionally important consequences.

"Phil Evans," said Uncle Prudent, "you have resolved, as I have, to sacrifice your life?"

"Yes, like you."

"It is evident that we can expect nothing from Robur."

"Nothing."

"Well, Phil Evans, I have made up my mind. If the Albatross leaves this place to-night, the night

will not pass without our having accomplished our task. We will smash the wings of this bird of Robur's! This night I will blow it into the air!"

"The sooner the better," said Phil Evans.

It will be seen that the two colleagues were agreed on all points, even in accepting with indifference the frightful death in store for them. "Have you all you want?" asked Evans.

"Yes. Last night, while Robur and his people had enough to do to look after the safety of the ship, I slipped into the magazine and got hold of a dynamite cartridge."

"Let us set to work, Uncle Prudent."

"No. Wait till to-night. When the night comes we will go into our cabin, and you shall see something that will surprise you."

At six o'clock the colleagues dined together as usual. Two hours afterwards they retired to their cabin like men who wished to make up for a sleepless night.

Neither Robur nor any of his companions had a suspicion of the catastrophe that threatened the Albatross.

This was Uncle Prudent's plan. As he had said, he had stolen into the magazine, and there had possessed himself of some powder and cartridge like those used by Robur in Dahomey. Returning to his cabin, he had carefully concealed the cartridge with which he had resolved to blow up the Albatross in mid-air.

Phil Evans, screened by his companion, was now examining the infernal machine, which was a metallic canister containing about two pounds of dynamite, enough to shatter the aeronef to atoms. If the explosion did not destroy her at once, it would do so in her fall. Nothing was easier than to place this cartridge in a corner of the cabin, so that it would blow in the deck and tear away the framework of the hull.

But to obtain the explosion, it was necessary to adjust the fulminating cap with which the cartridge was fitted. This was the most delicate part of the operation, for the explosion would have to be carefully timed, so as not to occur too soon or too late.

Uncle Prudent had carefully thought over the matter. His conclusions were as follows. As soon as the bow propeller was repaired, the aeronef would resume her course to the north, and that done Robur and his crew would probably come aft to put the other screw into order. The presence of these people about the cabin might interfere with his plans, and so he had resolved to make a slow match do duty as a time-fuse.

"When I got the cartridge," said he to Phil Evans, "I took some gunpowder as well. With the powder I will make a fuse that will take some time to burn, and which will lead into the fulminate. My idea is to light it about midnight, so that the explosion will take place about three or four o'clock in the morning."

"Well planned!" said Phil Evans.

The colleagues, as we see, had arrived at such a stage as to look with the greatest nonchalance on the awful destruction in which they were about to perish. Their hatred against Robur and his people had so increased that they would sacrifice their own lives to destroy the Albatross and all she bore. The act was that of madmen, it was horrible; but at such a pitch had they arrived after five weeks of anger that

could not vent itself, of rage that could not be gratified.

"And Frycollin" asked Phil Evans, "have we the right to dispose of his life?"

"We shall sacrifice ours as well!" said Uncle Prudent. It is doubtful if Frycollin would have thought the reason sufficient.

Immediately Uncle Prudent set to work, while Evans kept watch in the neighborhood of the cabin. The crew were all at work forward. There was no fear of being surprised. Uncle Prudent began by rubbing a small quantity of the powder very fine; and then, having slightly moistened it, he wrapped it up in a piece of rag in the shape of a match. When it was lighted he calculated it would burn about an inch in five minutes, or a yard in three hours. The match was tried and found to answer, and was then wound round with string and attached to the cap of the cartridge. Uncle Prudent had all finished about ten o'clock in the evening without having excited the least suspicion.

During the day the work on the bow screw had been actively carried on, but it had had to be taken on board to adjust the twisted blades. Of the batteries and accumulators and the machinery that drove the ship nothing was damaged.

When night fell Robur and his men knocked off work. The bow propeller had not been gotten into place, and to finish it would take another three hours. After some conversation with Tom Turner, it was decided to give the crew a rest, and postpone what remained to be done to the next morning.

The final adjustment was a matter of extreme nicety, and the electric lamps did not give so suitable a light for such work as the daylight.

Uncle Prudent and Phil Evans were not aware of this. They had understood that the screw would be in place during the night, and that the Albatross would be on her way to the north.

The night was dark and moonless. Heavy clouds made the darkness deeper. A light breeze began to rise. A few puffs came from the southwest, but they had no effect on the Albatross. She remained motionless at her anchor, and the cable stretched vertically downwards to the ground.

Uncle Prudent and his colleague, imagining they were under way again, sat shut up in their cabin, exchanging but a few words, and listening to the f-r-r-r of the ascension screws, which drowned every other sound on board. They were waiting till the time of action arrived.

A little before midnight Uncle Prudent said, "It is time!"

Under the berths in the cabin was a sliding box, forming a small locker, and in this locker Uncle Prudent put the dynamite and the slow-match. In this way the match would burn without betraying itself by its smoke or spluttering. Uncle Prudent lighted the end and pushed back the box under the berth with, "Now let us go aft, and wait."

They then went out, and were astonished not to find the steersman at his post.

Phil Evans leaned out over the rail.

"The Albatross is where she was," said he in a low voice. "The work is not finished. They have not started!"

Uncle Prudent made a gesture of disappointment. "We shall have to put out the match," said he.

"No," said Phil Evans, "we must escape."

"Escape?"

"Yes! down the cable! fifty yards is nothing!"

"Nothing, of course, Phil Evans, and we should be fools not to take the chance now it has come."

But first they went back to the cabin and took away all they could carry, with a view to a more or less prolonged stay on the Chatham Islands. Then they shut the door and noiselessly crept forward, intending to wake Frycollin and take him with them.

The darkness was intense. The clouds were racing up from the southwest, and the aeronef was tugging at her anchor, and thus throwing the cable more and more out of the vertical. There would be no difficulty in slipping down it.

The colleagues made their way along the deck, stopping in the shadow of the deckhouses to listen if there was any sound. The silence was unbroken. No light shone from the portholes. The aeronef was not only silent; she was asleep.

Uncle Prudent was close to Frycollin's cabin when Phil Evans stopped him. "The look-out!" he said.

A man was crouching near the deck-house. He was only half asleep. All flight would be impossible if he were to give the alarm. Close by were a few ropes, and pieces of rag and waste used in the work at the screw.

An instant afterwards the man was gagged and blindfolded and lashed to the rail unable to utter a sound or move an inch. This was done almost without a whisper.

Uncle prudent and Phil Evans listened. All was silent within the cabins. Every one on board was asleep. They reached Frycollin's cabin. Tapage* was snoring away in a style worthy of his name, and that promised well.

To his great surprise, Uncle Prudent had not even to push Frycollin's door. It was open. He stepped into the doorway and looked round. "Nobody here!" he said.

"Nobody! Where can he be?" asked Phil Evans.

They went into the bow, thinking Frycollin might perhaps be asleep in the corner. Still they found nobody.

"Has the fellow got the start of us?" asked Uncle Prudent.

"Whether he has or not," said Phil Evans, "we can't wait any longer. Down you go."

Without hesitation the fugitives one after the other clambered over the side and, seizing the cable with hands and feet, slipped down it safe and sound to the ground.

Their joy at again treading the earth they had lost for so long—at walking on solid ground and being no longer the playthings of the atmosphere!

They were starting up the creek to the interior of the island when suddenly a form rose in front of them. It was Frycollin. The negro had had the same idea as his master and the audacity to start without telling him. But there was no time for recriminations, and Uncle Prudent was in search of a refuge in some distant part of the island when Phil Evans stopped him.

"Uncle Prudent," said he. "Here we are safe from Robur. He is doomed like his companions to a terrible death. He deserves it, we know. But if he would swear on his honor not to take us prisoners again——"

"The honor of such a man——"

Uncle Prudent did not finish his sentence.

There was a noise on the Albatross. Evidently the alarm had been given. The escape was discovered.

"Help! Help!" shouted somebody. It was the lookout man, who had got rid of his gag. Hurried footsteps were heard on deck. Almost immediately the electric lamps shot beams over a large circle.

"There they are! There they are!" shouted Tom Turner. The fugitives were seen.

At the same instant an order was given by Robur, and, the ascension screws being slowed, the cable was hauled in on board, and the Albatross sank towards the ground.

At this moment the voice of Phil Evans was heard shouting, "Engineer Robur, will you give us your word of honor to leave us free on this island?"

"Never!" said Robur. And the reply was followed by the report of a gun, and the bullet grazed Phil's shoulder.

"Ah! The brutes!" said Uncle Prudent. Knife in hand, he rushed toward the rocks where the anchor had fixed itself. The aeronef was not more than fifty feet from the ground.

In a few seconds the cable was cut, and the breeze, which had increased considerably, striking the Albatross on the quarter, carried her out over the sea.

CHAPTER XX

The Wreck of the Albatross

IT was then twenty minutes after midnight. Five or six shots had been fired from the aeronef. Uncle Prudent and Frycollin, supporting Phil Evans, had taken shelter among the rocks. They had not been hit. For the moment there was nothing to fear.

As the Albatross drifted off from Pitt Island she rose obliquely to nearly three thousand feet. It was necessary to increase the ascensional power to prevent her falling into the sea.

When the look-out man had got clear of his gag and shouted, Robur and Tom Turner had rushed up to him and torn off his bandage. The mate had then run back to the stern cabin. It was empty! Tapage had searched Frycollin's cabin, and that also was empty.

When he saw that the prisoners had escaped, Robur was seized with a paroxysm of anger. The escape meant the revelation of his secret to the world. He had not been much concerned at the document thrown overboard while they were crossing Europe, for there were so many chances that it would be lost in its fall; but now——!

As he grew calm, "They have escaped," said he. "Be it so! but they cannot get away from Pitt island, and in a day or so I will go back! I will recapture them! And then——"

In fact, the safety of the three fugitives was by no means assured. The Albatross would be repaired, and return well in hand. Before the day was out they might again be in the power of the engineer.

Before the day was out! But in two hours the Albatross would be annihilated! The dynamite cartridge was like a torpedo fastened to her hull, and would accomplish her destruction in mid-air. The breeze freshened, and the aeronef was carried to the northeast. Although her speed was but moderate, she would be out of sight of the Chatham Islands

* Tapage, a French word which means "uproar."

before sunrise. To return against the wind she must have her propellers going, particularly the one in the bow.

"Tom," said the engineer, "turn the lights full on."

"Yes, sir."

"And all hands to work."

"Yes, sir."

There was no longer any idea of putting off the work till to-morrow. There was now no thought of fatigue. Not one of the men of the Albatross failed to share in the feelings of his chief. Not one but was ready to do anything to recapture the fugitives!

As soon as the screw was in place they would return to the island and drop another anchor, and give chase to the fugitives. Then only would they begin repairing the stern-screw; and then the aeronef could resume her voyage across the Pacific to X Island.

It was important, above all things, that the Albatross should not be carried too far to the northeast, but unfortunately the breeze grew stronger, and she could not head against it, or even remain stationary. Deprived of her propellers she was an unguidable balloon. The fugitives on the shore knew that she would have disappeared before the explosion blew her to pieces.

Robur felt much disappointment at seeing his plans so interfered with. Would it not take him much longer than he thought to get back to his old anchorage?

While the work at the screw was actively pushed on, he resolved to descend to the surface of the sea, in the hope that the wind would there be lighter. Perhaps the Albatross would be able to remain in the neighborhood until she was again fit to work to windward.

The maneuver was instantly executed. If a passing ship had sighted the aerial machine as she sank through the air, with her electric lights in full blaze, with what terror would she have been seized!

When the Albatross was a few hundred feet from the waves she stopped. Unfortunately Robur found that the breeze was stronger here than above, and the aeronef drifted off more rapidly. He risked being blown a long way off to the northeast, and that would delay his return to Pitt Island.

In short, after several experiments, he found it better to keep his ship well up in the air, and the Albatross went aloft to about ten thousand feet. There, if she did not remain stationary, the drifting was very slight. The engineer could thus hope that by sunrise at such an altitude he would still be in sight of the island.

Robur did not trouble himself about the reception the fugitives might have received from the natives—if there were any natives. That they might help them mattered little to him. With the powers of offence possessed by the Albatross they would be promptly terrified and dispersed. The capture of the prisoners was certain, and once he had them again, "They will not escape from X Island!"

About one o'clock in the morning, the fore-screw was finished, and all that had to be done was to get it back to its place. This would take about an hour. That done, the Albatross would be headed southwest and the stern-screw could be taken in hand.

And how about the match that was burning in the deserted cabin?—the match of which more than a third was now consumed? And the spark that was creeping along to the dynamite?

Assuredly if the men of the aeronef had not been so busy one of them would have heard the feeble sputtering that was going on in the deck-house. Perhaps he would have smelt the burning powder! He would doubtless have become uneasy! And told Tom Turner! And then they would have looked about, and found the box and the infernal machine; and then there would have been time to save this wonderful Albatross and all she bore!

But the men were at work in the bow, twenty yards away from the cabin. Nothing brought them to that part of the deck; nothing called off their attention from their work.

Robur was there working with his hands, excellent mechanic as he was. He hurried on the work, but nothing was neglected, everything was carefully done. Was it not necessary that he should again become absolute master of his invention? If he did not recapture the fugitives they would get away home. They would begin inquiring into matters. They might even discover X Island, and there would be an end to this life, which the men of the Albatross had created for themselves, a life that seemed superhuman and sublime.

Tom Turner came up to the engineer. It was a quarter past one. "It seems to me, sir, that the breeze is falling, and going round to the west."

"What does the barometer say?" asked Robur, after looking up at the sky.

"It is almost stationary, and the clouds seem gathering below us."

"So they are, and it may be raining down at the sea; but if we keep above the rain it makes no difference to us. It will not interfere with the work."

"If it is raining it is not a heavy rain," said Tom. "The clouds do not look like it, and probably the wind has dropped altogether."

"Perhaps so, but I think we had better not go down yet. Let us get into going order as soon as we can, and then we can do as we like."

At a few minutes after two the first part of the work was finished. The bow-screw was in its place, and the power was turned on. The speed was gradually increased, and the Albatross, heading to the southwest, returned at moderate speed towards the Chatham Islands.

"Tom," said Robur, "it is about two hours and a half since we got adrift. The wind has not changed all the time. I think we ought to be over the island in an hour."

"Yes, sir. We are going about forty feet a second. We ought to be there about half-past three."

"All the better. It would suit us best to get back while it is dark, and even beach the Albatross if we can. Those fellows will fancy we are a long way off to the northward, and never think of keeping a look-out. If we have to stop a day or two on the island——"

"We'll stop, and if we have to fight an army of natives——"

"We'll fight," said Robur. "We'll fight then for our Albatross."

The engineer went forward to the men, who were waiting for orders. "My lads," he said to them, "we cannot knock off yet. We must work till day comes."

They were all ready to do so. The stern-screw had now to be treated as the other had been. The damage was the same, a twisting from the violence

of the hurricane during the passage across the southern pole.

But to get the screw on board it seemed best to stop the progress of the aeronef for a few minutes, and even to drive her backwards. The engines were reversed. The aeronef began to fall astern, when Tom Turner was surprised by a peculiar odor.

This was from the gas given off by the match, which had accumulated in the box, and was now escaping from the cabin. "Hallo!" said the mate, with a sniff.

"What is the matter?" asked Robur.

"Don't you smell something? Isn't it burning powder?"

"So it is, Tom."

"And it comes from that cabin."

"Yes, the very cabin——"

"Have those scoundrels set it on fire?"

"Suppose it is something else!" exclaimed Robur. "Force the door, Tom; drive in the door!"

But the mate had not made one step towards it when a fearful explosion shook the Albatross. The cabins flew into splinters. The lamps went out. The electric current suddenly failed. The darkness was complete. Most of the ascension screws were twisted or broken, but a few in the bow still revolved.

At the same instant the hull of the aeronef opened just behind the first deck-house, where the engines for the fore-screw were placed; and the after-part of the deck collapsed in space.

Immediately the last ascension screw stopped spinning, and the Albatross dropped into the abyss.

It was a fall of ten thousand feet for the eight men who were clinging to the wreck; and the fall was even faster than it might have been, for the bow propeller was vertical in the air and still working!

It was then that Robur, with extraordinary coolness, climbed up to the broken deck-house, and seizing the lever, reversed the rotation, so that the propeller became a suspender.

The fall continued, but it was checked, and the wreck did not fall with the accelerating swiftness of bodies influenced solely by gravitation; and if it was death to the survivors of the Albatross from their being hurled into the sea, it was not death by asphyxia amid air which the rapidity of descent rendered unbreathable.

Eighty seconds after the explosion, all that remained of the Albatross plunged into the waves!

CHAPTER XXI

The Institute Again

SOME weeks before, on the 13th of June, on the morning after the sitting during which the Weldon Institute had been given over to such stormy discussions, the excitement of all classes of the Philadelphian population, black or white, had been much easier to imagine than to describe.

From a very early hour conversation was entirely occupied with the unexpected and scandalous incident of the night before. A stranger calling himself an engineer, and answering to the name of Robur, a person of unknown origin, of anonymous nationality, had unexpectedly presented himself in the clubroom, insulted the balloonists, made fun of the aeronauts, boasted of the marvels of machines heavier than air, and raised a frightful tumult by the remarks with which he greeted the menaces of his adversaries. After leaving the desk, amid a volley of revolver

shots, he had disappeared, and, in spite of every endeavor, no trace could be found of him.

Assuredly here was enough to exercise every tongue and excite every imagination. But by how much was this excitement increased when in the evening of the 13th of June it was found that neither the president nor secretary of the Weldon Institute had returned to their homes! Was it by chance only that they were absent? No, or at least there was nothing to lead people to think so. It had even been agreed that in the morning they would be back at the club, one as president, the other as secretary, to take their places during a discussion on the events of the preceding evening.

And not only was there the complete disappearance of these two considerable personages in the State of Pennsylvania, but there was no news of the valet Frycollin. He was as undiscoverable as his master. Never had a negro since Toussaint L'Ouverture, Soulouque, or Dessaline had so much talked about him.

The next day there was no news. Neither the colleagues nor Frycollin had been found. The anxiety became serious. Agitation commenced. A numerous crowd besieged the Post and Telegraph Offices in case any news should be received. There was no news.

And they had been seen coming out of the Weldon Institute loudly talking together, and with Frycollin in attendance, go down Walnut Street towards Fairmount Park! Jem Chip, the vegetarian, had even shaken hands with the president and left him with "To-morrow!"

And William T. Forbes, the manufacturer of sugar from rags, had received a cordial shake from Phil Evans who had said to him twice, "Au revoir! au revoir!"

Miss Doll and Miss Mat Forbes, so attached to Uncle Prudent by the bonds of purest friendship, could not get over the disappearance, and in order to obtain news of the absent, talked even more than they were accustomed to.

Three, four, five, six days passed. Then a week, then two weeks, and there was nothing to give a clue to the missing three. The most minute search had been made in every quarter. Nothing! In the streets going down to the harbor. Nothing! In the park, even under the trees and brushwood. Nothing! Always nothing! although here it was noticed that the grass looked to be pressed down in a way that seemed suspicious and certainly was inexplicable; and at the edge of the clearing there were traces of a recent struggle. Perhaps a band of scoundrels had attacked the colleagues here in the deserted park in the middle of the night!

It was possible. The police proceeded with their inquiries in all due form and with all lawful slowness. They dragged the Schuylkill river, and cut into the thick bushes that fringe its banks; and if this was useless it was not quite waste, for the Schuylkill is in great want of a good weeding, and it got it on this occasion! Practical people are the authorities of Philadelphia!

Then the newspapers were tried. Advertisements and notices were sent to all the journals in the Union without distinction of color. The *Daily Negro*, the special organ of the black race, published a portrait of Frycollin after his latest photograph. Rewards were offered to whoever would give news of the

three absentees, and even to those who would find some clue to put the police on the track.

"Five thousand dollars! five thousand dollars to any citizen who would—"

Nothing was done. The five thousand dollars remained with the treasurer of the Weldon Institute.

Undiscoverable! undiscoverable! undiscoverable! Uncle Prudent and Phil Evans, of Philadelphia!

It need hardly be said that the club was put to serious inconvenience by this disappearance of its president and secretary. And at first the assembly voted urgency to a measure which suspended the work on the Go-ahead. How, in the absence of the principal promoters of the affair, of those who had devoted to the enterprise a certain part of their fortune, time and money—how could they finish the work when these were not present? It were better, then, to wait.

And just then came the first news of the strange phenomenon which had exercised people's minds some weeks before.

The mysterious object had been again seen at different times in the higher regions of the atmosphere. But nobody dreamed of establishing a connection between this singular reappearance and the no less singular disappearance of the members of the Weldon Institute. In fact, it would have required a very strong dose of imagination to connect one of these facts with the other.

Whatever it might be, asteroid or aerolite or aerial monster, it had reappeared in such a way that its dimensions and shape could be much better appreciated, first in Canada, over the country between Ottawa and Quebec, on the very morning after the disappearance of the colleagues, and later over the plains of the Far West, where it had tried its speed against an express train on the Union Pacific.

At the end of this day, the doubts of the learned world were at an end. The body was not a product of nature, it was a flying machine, the practical application of the theory of "heavier than air." And if the inventor of the aeronef had wished to keep himself unknown he could evidently have done better than to try it over the Far West. As to the mechanical force he required, or the engines by which it was exerted, nothing was known, but there could be no doubt the aeronef was gifted with an extraordinary faculty of locomotion. In fact, a few days afterwards it was reported from the Celestial Empire, then from the southern part of India, then from the Russian steppes.

Then who was this bold mechanician that possessed such powers of locomotion, for whom States had no frontiers and oceans no limits, who disposed of the terrestrial atmosphere as if it were his domain? Could it be this Robur whose theories had been so brutally thrown in the face of the Weldon Institute the day he led the attack against the utopia of dirigible balloons? Perhaps such a notion occurred to some of the wide-awake people, but none dreamed that the said Robur had anything to do with the disappearance of the president and secretary of the Institute.

Things remained in this state of mystery when a telegram arrived from France through the New York cable at 11:37 A. M. on July 13th. And what was this telegram? It was the text of the document found at Paris in a snuff-box revealing what had happened to the two personages for whom the Union was in mourning.

So, then, the perpetrator of this kidnapping was Robur the engineer, come expressly to Philadelphia to destroy in its egg the theory of the balloonists. He it was who commanded the Albatross! He it was who carried off by way of reprisal Uncle Prudent, Phil Evans, and Frycollin; and they might be considered lost forever. At least until some means were found of constructing an engine capable of contending with this powerful machine their terrestrial friends would never bring them back to earth.

What excitement! What stupor! The telegram from Paris had been addressed to the members of the Weldon Institute. The members of the club were immediately informed of it. Ten minutes later all Philadelphia received the news through its telephones, and in less than an hour all America heard of it through the innumerable electric wires of the new continent.

No one would believe it! "It is an unseasonable joke," said some. "It is all smoke," said others. How could such a thing be done in Philadelphia, and so secretly, too? How could the Albatross have been landed in Fairmount Park without its appearance having been signaled all over Pennsylvania?

Very good. These were the arguments. The incredulous had the right of doubting. But the right did not last long. Seven days after the receipt of the telegram the French mail-boat *Normandie* came into the Hudson, bringing the famous snuff-box. The railway took it in all haste from New York to Philadelphia.

It was indeed the snuff-box of the President of the Weldon Institute. Jem Chip would have done better on that day to take some more substantial nourishment, for he fell into a swoon when he recognized it. How many a time had he taken from it the pinch of friendship! And Miss Doll and Miss Mat also recognized it, and so did William T. Forbes, Truck Milnor, Bat T. Flynn, and many other members. And not only was it the president's snuff-box, it was the president's writing.

Then did the people lament and stretch out their hands in despair to the skies. Uncle Prudent and his colleague carried away in a flying machine, and no one able to deliver them!

The Niagara Falls Company, in which Uncle Prudent was the largest shareholder, thought of suspending its business and turning off its turbines. The Wheelton Watch Company thought of winding up its machinery now it had lost its manager.

Nothing more was heard of the aeronef. July passed, and there was no news. August ran its course, and the uncertainty on the subject of Robur's prisoners was as great as ever. Had he, like Icarus, fallen a victim to his own temerity?

The first twenty-seven days of September went by without result, but on the 28th a rumor spread through Philadelphia that Uncle Prudent and Phil Evans had during the afternoon quietly walked into the president's house. And, what was more extraordinary, the rumor was true, although very few believed it.

They had, however, to give in to the evidence. There could be no doubt these were the two men, and not their shadows. And Frycollin also had come back! The members of the club, then their friends, then the crowd, swarmed into the president's house, and shook hands with the president and secretary, and cheered them again and again.

Jem Chip was there, having left his luncheon—a joint of boiled lettuces—and William T. Forbes was there and his daughters, and all the members of the club. It is a mystery how Uncle Prudent and Phil Evans emerged alive from the thousands who welcomed them.

That was the evening for the weekly meeting of the Institute. It was expected that the colleagues would take their places at the desk. As they had said nothing of their adventures, it was thought they would then speak, and relate the impressions of their voyage. But for some reason or other both were silent. And so also was Frycollin, whom his congeners in their delirium had failed to dismember.

But though the colleagues did not tell what had happened to them, that is no reason why we should not. We know what occurred on the night of the 27th and 28th of July; the daring escape to the earth, the scramble among the rocks, the bullet fired at Phil Evans, the cut cable, and the Albatross deprived of her propellers, drifting off to the north-east at a great altitude. Her electric lamps rendered her visible for some time. And then she disappeared.

The fugitives had little to fear. How could Robur get back to the island for three or four hours if his screws were out of gear? By that time the Albatross would have been destroyed by the explosion, and be no more than a wreck floating on the sea; those whom she bore would be mangled corpses, which the ocean would not even give up again. The act of vengeance would be accomplished.

Uncle Prudent and Phil Evans looked upon it as an act of legitimate self-defence, and felt no remorse whatever. Evans was but slightly wounded by the rifle bullet, and the three made their way up from the shore in the hope of meeting some of the natives. The hope was realized. About fifty natives were living by fishing off the western coast. They had seen the aeronef descend on the island, and they welcomed the fugitives as if they were supernatural beings. They worshiped them, we ought rather to say. They accommodated them in the most comfortable of their huts.

As they had expected, Uncle Prudent and Phil Evans saw nothing more of the aeronef. They concluded that the catastrophe had taken place in some high region of the atmosphere, and that they would hear no more of Robur and his prodigious machine.

Meanwhile they had to wait for an opportunity of returning to America. The Chatham Islands are not much visited by navigators, and all August passed without sign of a ship. The fugitives began to ask themselves if they had not exchanged one prison for another.

At last, a ship came to water at the Chatham Islands. It will not have been forgotten that when Uncle Prudent was seized he had on him several thousand paper dollars, much more than would take him back to America. After thanking their adorers, who were not sparing of their most respectful demonstrations, Uncle Prudent, Phil Evans, and Frycollin embarked for Auckland. They said nothing of their adventures, and in two weeks landed in New Zealand.

At Auckland, a mail-boat took them on board as passengers, and after a splendid passage the survivors of the Albatross stepped ashore at San Francisco. They said nothing as to who they were or whence they had come, but as they had paid full

price for their berths, no American captain would trouble them further. At San Francisco they took the first train out on the Pacific Railway, and on the 27th of September, they arrived at Philadelphia. That is the compendious history of what had occurred since the escape of the fugitives. And that is why this very evening the president and secretary of the Weldon Institute took their seats amid a most extraordinary attendance.

Never before had either of them been so calm. To look at them it did not seem as though anything abnormal had happened since the memorable sitting of the 12th of June. Three months and a half had gone, and seemed to be counted as nothing. After the first round of cheers, which both received without showing the slightest emotion, Uncle Prudent took off his hat and spoke.

"Worthy citizens," said he, "the meeting is now open."

Tremendous applause. And properly so, for if it was not extraordinary that the meeting was open, it was extraordinary that it should be opened by Uncle Prudent and Phil Evans.

The president allowed the enthusiasm to subside in shouts and clappings; then he continued: "At our last meeting, gentlemen, the discussion was somewhat animated—(hear, hear)—between the partisans of the screw before and those of the screw behind for our balloon the Go-ahead. (Marks of surprise). We have found a way to bring the beforists and the behindists in agreement. That way is as follows: we are going to use two screws, one at each end of the car!" (Silence and complete stupefaction.)

That was all.

Yes, all! Of the kidnapping of the president and secretary of the Weldon Institute not a word! Not a word of the Albatross nor of Robur! Not a word of the voyage! Not a word of the way in which the prisoners had escaped! Not a word of what had become of the aeronef, if it still flew through space, or if they were to be prepared for new reprisals on the members of the club!

Of course the balloonists were longing to ask Uncle Prudent and the secretary about all these things, but they looked so close and so serious that they thought it best to respect their attitude. When they thought fit to speak they would do so, and it would be an honor to hear. After all, there might be in all this some secret which would not yet be divulged.

And then Uncle Prudent, resuming his speech amid a silence up to then unknown in the meetings of the Weldon Institute, said, "Gentlemen, it now only remains for us to finish the aerostat Go-ahead. It is left to her to effect the conquest of the air! The meeting is at an end!"

CHAPTER XXII

The Go-ahead Is Launched

ON the following 19th of April, seven months after the unexpected return of Uncle Prudent and Phil Evans, Philadelphia was in a state of unwonted excitement. There were neither elections nor meetings this time. The aerostat Go-ahead, built by the Weldon Institute, was to take possession of her natural element.

The celebrated Harry W. Tinder, whose name we mentioned at the beginning of this story, had been engaged as aeronaut. He had no assistant, and the

only passengers were to be the president and secretary of the Weldon Institute. Did they not merit such an honor? Did it not come to them appropriately to rise in person to protest against any apparatus that was heavier than air?

During the seven months, however, they had said nothing of their adventures; and even Frycollin had not uttered a whisper of Robur and his wonderful clipper. Probably Uncle Prudent and his friend desired that no question should arise as to the merits of the aeronef, or any other flying machine. Although the Go-ahead might not claim the first place among aerial locomotives, they would have nothing to say about the inventions of other aviators. They believed, and would always believe, that the true atmospheric vehicle was the aerostat, and that to it alone belonged the future.

Besides, he whom they had been so terribly—and in their idea so justly—avenged, existed no longer. None of those who accompanied him had survived. The secret of the Albatross was buried in the depths of the Pacific!

That Robur had a retreat, an island in the middle of that vast ocean, where he could put into port, was only a hypothesis; and the colleagues reserved to themselves the right of making inquiries on the subject—later on.

The grand experiment which the Weldon Institute had been preparing for so long was at last to take place. The Go-ahead was the most perfect type of what had up to then been invented in aerostatic art—she was what an "Inflexible" or a "Formidable" is in ships of war.

She possessed all the qualities of a good aerostat. Her dimensions allowed of her rising to the greatest height a balloon could attain; her impermeability enabled her to remain for an indefinite time in the atmosphere; her solidity would defy any dilatation of gas or violence of wind or rain; her capacity gave her sufficient ascensional force to lift with all their accessories an electric engine that would communicate to her propellers a power superior to anything yet obtained. The Go-ahead was of elongated form, so as to facilitate her horizontal displacement. Her car was a platform somewhat like that of the balloon used by Krebs and Renard; and it carried all the necessary outfit, instruments, cables, grapnels, guide-ropes, etc., and the batteries and accumulators for the mechanical power. The car had a screw in front, and a screw and rudder behind. But probably the work done by the machines would be very much less than that done by the machines of the Albatross.

The Go-ahead had been taken to the clearing in Fairmount Park, to the very spot where the aeronef had landed for a few hours.

Her ascensional power was due to the very lightest of gaseous bodies. Ordinary lighting gas possesses an elevating force of about 700 grammes for every cubic meter. But hydrogen possesses an ascensional force estimated at 1,100 grammes per cubic meter. Pure hydrogen prepared according to the method of the celebrated Henry Gifford filled the enormous balloon. And as the capacity of the Go-ahead was 40,000 cubic meters, the ascensional power of the gas she contained was 40,000 multiplied by 1,100, or 44,000 kilogrammes.

On this 29th of April everything was ready. Since eleven o'clock the enormous aerostat had been floating a few feet from the ground, ready to rise in

mid-air. It was splendid weather and seemed to have been made specially for the experiment, although if the breeze had been stronger, the results might have been more conclusive. There had never been any doubt that a balloon could be guided in a calm atmosphere; but to guide it when the atmosphere is in motion is quite another thing; and it is under such circumstances that the experiment should be tried.

But there was no wind to-day, nor any sign of any. Strange to say, North America on that day omitted to send on to Europe one of those first-class storms which it seems to have in such inexhaustible numbers. A better day could not have been chosen for an aeronautic experiment.

The crowd was immense in Fairmount Park; trains had poured sightseers from the neighboring state into the Pennsylvania capital; industrial and commercial life came to a standstill that the people might troop to the show—masters, workmen, women, old men, children, members of Congress, soldiers, magistrates, reporters, white natives and black natives, all were there. We need not stop to describe the excitement, the unaccountable movements, the sudden pushings, which made the mass heave and swell. Nor need we recount the number of cheers which rose from all sides like fireworks when Uncle Prudent and Phil Evans appeared on the platform and hoisted the American colors. Need we say that the majority of the crowd had come from afar not so much to see the Go-ahead as to gaze on these extraordinary men?

Why two and not three? Why not Frycollin? Because Frycollin thought his campaign in the Albatross sufficient for his fame. He had declined the honor of accompanying his master, and he took no part in the frenzied acclamations that greeted the president and secretary of the Weldon Institute.

Of the members of the illustrious assembly not one was absent from the reserved places within the ropes. There were Truck Milnor, Bat T. Flynn, and William T. Forbes with his two daughters on his arms. All had come to affirm by their presence that nothing could separate them from the partisans of "lighter than air."

About twenty minutes past eleven a gun announced the end of the final preparations. The Go-ahead only waited the signal to start. At twenty-five minutes past eleven the second gun was fired.

The Go-ahead was about one hundred and fifty feet above the clearing, and was held by a rope. In this way the platform commanded the excited crowd. Uncle Prudent and Phil Evans stood upright and placed their left hands on their hearts, to signify how deeply they were touched by their reception. Then they extended their right hands towards the zenith, to signify that the greatest of known balloons was about to take possession of the supraterrrestrial domain.

A hundred thousand hands were placed in answer on a hundred thousand hearts, and a hundred thousand other hands were lifted to the sky.

The third gun was fired at half-past eleven. "Let go!" shouted Uncle Prudent; and the Go-ahead rose "majestically"—an adverb consecrated by custom to all aerostatic ascents.

It really was a superb spectacle. It seemed as if a vessel were just launched from the stocks. And was she not a vessel launched into the aerial sea? The Go-ahead went up in a perfectly vertical line—

a proof of the calmness of the atmosphere—and stopped at an altitude of eight hundred feet.

Then she began her horizontal maneuvering. With her screws going she moved to the east at a speed of twelve yards a second. That is the speed of the whale—not an inappropriate comparison, for the balloon was somewhat of the shape of the giant of the many seas.

A salvo of cheers mounted towards the skillful aeronauts.

Then, under the influence of her rudder, the Go-ahead went through all the evolutions that her steersman could give her. She turned in a small circle; She moved forwards and backwards in a way to convince the most refractory unbeliever in the guiding of balloons. And if there had been any unbeliever there he would simply have been annihilated.

But why was there no wind to assist at this magnificent experiment? It was regrettable. Doubtless the spectators would have seen the Go-ahead unhesitatingly execute all the movements of a sailing vessel in beating to windward, or of a steamer driving in the wind's eye.

At this moment the aerostat rose a few hundred yards.

This maneuver was understood below. Uncle Prudent and his companions were going in search of a breeze in the higher zones, so as to complete the experiment. The system of cellular balloons—analagous to the swimming bladder in fishes—into which could be introduced a certain amount of air by pumping, had provided for this vertical motion. Without throwing out ballast or losing gas, the aeronaut was able to rise or sink at his will. Of course there was a valve in the upper hemisphere which would permit of a rapid descent if found necessary. All these contrivances are well known, but they were here fitted in perfection.

The Go-ahead then rose vertically. Her enormous dimensions gradually grew smaller to the eye, and the necks of the crowd were almost wrenched as they gazed into the air. Gradually the whale became a porpoise, and the porpoise became a gudgeon. The ascensional movement did not cease until the Go-ahead had reached a height of fourteen thousand feet. But the air was so free from mist that she remained clearly visible.

However, she remained over the clearing as if she were a fixture. An immense bell seemed to have imprisoned the atmosphere and deprived it of movement; not a breath of wind was there, high or low. The aerostat maneuvered without encountering any resistance, seeming very small owing to the distance, much as if she were being looked at through the wrong end of a telescope.

Suddenly there was a shout among the crowd, a shout followed by a hundred thousand more. All hands stretched towards a point on the horizon. That point was the northwest.

There in the deep azure appeared a moving body, which was approaching and growing larger. Was it a bird beating with its wings the higher zones of space? Was it an aerolite shooting obliquely through the atmosphere? In any case, its speed was terrific, and it would soon be above the crowd.

A suspicion communicated itself electrically to the brains of all on the clearing.

But it seemed as though the Go-ahead had sighted this strange object. Assuredly it seemed as though

she feared some danger, for her speed was increased, and she was going east as fast as she could.

Yes, the crowd saw what it meant! A name uttered by one of the members of the Weldon Institute was repeated by a hundred thousand mouths:

"The Albatross! the Albatross!"

CHAPTER XIII

The Grand Collapse

IT was indeed the Albatross! It was indeed Robur who had reappeared in the heights of the sky! It was he who like a huge bird of prey was going to strike the Go-ahead.

And yet, nine months before, the aeronef, shattered by the explosion, her screws broken, her deck smashed in two, had been apparently annihilated.

Without the prodigious coolness of the engineer, who reversed the gyratory motion of the bow propeller and converted it into an ascension screw, the men of the Albatross would all have been asphyxiated by the fall. But if they had escaped asphyxia, how had they escaped being drowned in the Pacific?

The remains of the deck, the blades of the propellers, the compartments of the cabins, all formed a sort of raft. When a wounded bird falls on the waves its wings keep it afloat. For several hours Robur and his men remained unhelped, at first on the wreck, and afterwards in the india-rubber boat that had fallen uninjured. A few hours after sunrise they were sighted by a passing ship, and a boat was lowered to their rescue.

Robur and his companions were saved, and so was much of what remained of the aeronef. The engineer said that his ship had perished in a collision, and no further questions were asked him.

The ship was an English three-master, the *Two Friends*, bound for Melbourne, where she arrived a few days afterwards.

Robur was in Australia, but a long way from X Island, to which he desired to return as soon as possible.

In the ruins of the aftermost cabin he had found a considerable sum of money, quite enough to provide for himself and companions without applying to anyone for help. A short time after he arrived in Melbourne, he became the owner of a small brigantine of about a hundred tons, and in her he sailed for X Island.

There he had but one idea—to be avenged. But to secure his vengeance he would have to make another Albatross. This after all was an easy task for him who made the first. He used up what he could of the old material; the propellers and engines he had brought back in the brigantine. The mechanism was fitted with new batteries and new accumulators, and, in short, in less than eight months the work was finished and a new Albatross, identical with the one destroyed by the explosion, was ready to take flight. And he had the same crew.

The Albatross left X Island in the first week of April. During this aerial passage Robur did not want to be seen from the earth, and he came along almost always above the clouds. When he arrived over North America, he descended in a desolate spot in the Far West. There the engineer, keeping a profound incognito, learned with considerable pleasure that the Weldon Institute was about to begin its experiments, and that the Go-ahead, with

Uncle Prudent and Phil Evans, was going to start from Philadelphia on the 29th of April.

Here was a chance for Robur and his crew to gratify their longing for revenge! Here was a chance of inflicting on their foes a terrible vengeance, which in the Go-ahead they could not escape! A public vengeance, which would at the same time prove the superiority of the aeronef to all aerostats and contrivances of that nature!

And that is why, on this very day, like a vulture from the clouds, the aeronef appeared over Fairmount Park.

Yes! It was the Albatross, easily recognized by all those who had never before seen her.

The Go-ahead was in full flight; but it soon appeared that she could not escape horizontally, and so she sought her safety in a vertical direction, not dropping to the ground, for the aeronef would have cut her off, but rising to a zone where she could not perhaps be reached. This was very daring, and at the same time very logical.

But the Albatross began to rise after her. Although she was smaller than the Go-ahead, it was a case of the swordfish and the whale.

This could easily be seen from below, and with what anxiety! In a few moments the aerostat had attained a height of sixteen thousand feet.

The Albatross followed her as she rose. She flew round her flanks, maneuvered round her in a circle with a constantly diminishing radius. She could have annihilated her at a stroke, and Uncle Prudent and his companions would have been dashed to atoms in a frightful fall.

The people, mute with horror, gazed breathlessly; they were seized with that sort of fear which presses on the chest and grips the legs when we see anyone fall from a height. An aerial combat was beginning in which there were none of the chances of safety as in a sea-fight. It was the first of its kind, but it would not be the last, for progress is one of the laws of this world. And if the Go-ahead was flying the American colors, did not the Albatross display the stars and golden sun of Robur the Conqueror?

The Go-ahead tried to distance her enemy by rising still higher. She threw away the ballast she had in reserve; she made a new leap of three thousand feet; she was now but a dot in space. The Albatross, which followed her round and round at top speed, was now invisible.

Suddenly a shout of terror rose from the crowd. The Go-ahead increased rapidly in size, and the aeronef appeared dropping with her. This time it was a fall. The gas had dilated in the higher zones of the atmosphere and had burst the balloon, which, half inflated still, was falling rapidly.

But the aeronef, slowing her ascension screws, came down just as fast. She ran alongside the Go-ahead when she was not more than four thousand feet from the ground.

Would Robur destroy her?

No; he was going to save her crew!

And so cleverly did he handle his vessel that the aeronaut jumped on board.

Would Uncle Prudent and Phil Evans refuse to be saved by him? They were quite capable of doing so. But the crew threw themselves on them and dragged them by force from the Go-ahead to the Albatross.

Then the aeronef glided off and remained station-

ary, while the balloon, quite empty of gas, fell on the trees of the clearing and hung there like a gigantic rag.

An appalling silence reigned on the ground. It seemed as though life were suspended in each of the crowd; and many eyes had been closed so as not to behold the final catastrophe.

Uncle Prudent and Phil Evans had again become the prisoners of the redoubtable Robur. Now he had recaptured them, would he carry them off into space, where it was impossible to follow him?

It seemed so.

However, instead of mounting into the sky, the Albatross continued falling. Was she coming down to the ground? It looked as though she were, and the crowd divided so as to leave a space for her in the center of the clearing.

The excitement was at its maximum. The Albatross stopped six feet from the ground. Then, amid profound silence, the engineer's voice was heard.

"Citizens of the United States," he said, "the president and secretary of the Weldon Institute are again in my power. In keeping them I am only within my right. But from the passion kindled in them by the success of the Albatross, I see that their minds are not prepared for that important revolution which the conquest of the air will one day bring. Uncle Prudent and Phil Evans, you are free!"

The president, the secretary, and the aeronaut had only to jump down.

Then Robur continued:

"Citizens of the United States, my experiment is finished; but my advice to those present is to be premature in nothing, not even in progress. It is evolution and not revolution that we should seek. In a word, we must not be before our time. I have come too soon to-day to withstand such contradictory and divided interests as yours. Nations are not yet fit for union.

"I go, then; and I take my secret with me. But it will not be lost to humanity. It will belong to you the day you are educated enough to profit by it and wise enough not to abuse it. Citizens of the United States! Good-by!"

And the Albatross, beating the air with her seventy-four screws, and driven by her propellers, shot off towards the east amid a tempest of cheers.

The two colleagues, profoundly humiliated, as through them was the whole Weldon Institute, did the only thing they could. They went home.

And the crowd, by a sudden change of front, greeted them with particularly keen sarcasms, and, at their expense, are sarcastic still.

AND now, who is this Robur? Shall we ever know?

We know to-day. Robur is the science of the future. Perhaps the science of to-morrow! Certainly the science that will come!

Does the Albatross still cruise in the atmosphere in the realm that none can take from her? There is no reason to doubt it. Will Robur, the Conqueror, appear one day as he said? Yes! He will come to declare the secret of his invention, which will greatly change the social and political conditions of the world.

As for the future of aerial locomotion, it belongs to the aeronef and not the aerostat.

It is to the Albatross that the conquest of the air will assuredly fall.

The STOLEN BODY *by* H. G. Wells

Author of:
"The Time Machine"
"The War of the Worlds"
"The Story of the Stone Age"
Etcetera



He states that the appearance, although brief, was very vivid and real. He noticed that Mr. Bessel's face was white and his expression anxious, and moreover, that his hair was disordered. For a moment Mr. Vincey, in spite of his state of expectation, was too surprised to speak or move.



R. BESSEL was the senior partner in the firm of Bessel, Hart, and Brown, of St. Paul's Churchyard, and for many years he was well known among those interested in psychical research as a liberal-minded and conscientious investigator. He was an unmarried man, and instead of living in the suburbs, after the fashion of his class, he occupied rooms in the Albany, near Piccadilly. He was particularly interested in the questions of thought transference and of apparitions of the living, and in November, 1896, he commenced a series of experiments in conjunction with Mr. Vincey, of Staple Inn, in order to test the alleged possibility of projecting an apparition of oneself by force of will through space.

Their experiments were conducted in the following manner: At a pre-arranged hour Mr. Bessel shut himself in one of his rooms in the Albany and Mr. Vincey in his sitting-room in Staple Inn, and each then fixed his mind as resolutely as possible on the other. Mr. Bessel had acquired the art of self-hypnotism, and, so far as he could, he attempted first to hypnotise himself and then to project himself as a "phantom of the living" across the intervening space of nearly two miles into Mr. Vincey's apartment. On several evenings this was tried without any satisfactory result, but on the fifth or sixth occasion Mr. Vincey did actually see or imagine he saw an apparition of Mr. Bessel standing in his room. He states that the appearance, although brief, was very vivid and real. He noticed that Mr. Bessel's face was white and his expression anxious, and, moreover, that his hair was disordered. For a moment Mr. Vincey, in spite of his state of expectation, was too surprised to speak or move, and in that moment it seemed to him as though the figure glanced over its shoulder and incontinently vanished.

It had been arranged that an attempt should be made to photograph any phantasm seen, but Mr. Vincey had not the instant presence of mind to snap the camera that lay ready on the table beside him, and when he did so he was too late. Greatly elated, however, even by this partial success, he made a note of the exact time, and at once took a cab to the Albany to inform Mr. Bessel of his result.

He was surprised to find Mr. Bessel's outer door standing open to the night, and the inner apartments lit and in an extraordinary disorder. An empty champagne magnum lay smashed upon the floor; its neck had been broken off against the inkpot on the bureau and lay beside it. An octagonal occasional table, which carried a bronze statuette and a number of choice books, had been rudely overturned, and down the primrose paper of the wall inky fingers had been drawn, as it seemed for the mere pleasure of defilement. One of the delicate chintz curtains had been violently torn from its rings and thrust upon the fire, so that the smell of its smouldering filled the room. For a few minutes Mr. Vincey, who had entered, sure of finding Mr. Bessel in his easy chair awaiting him, could scarcely believe his eyes, and stood staring helplessly at these unanticipated things.

Then, full of a vague sense of calamity, he sought the porter at the entrance lodge. "Where is Mr. Bessel?" he asked. "Do you know that all the furniture is broken in Mr. Bessel's room?" The porter said nothing, but, obeying his gestures, came at once to Mr. Bessel's apartment to see the state of affairs. "This settles it," he said, surveying the lunatic confusion. "I didn't know of this. Mr. Bessel's gone off. He's mad!"

He then proceeded to tell Mr. Vincey that about half an hour previously, that is to say, at about the time of Mr. Bessel's apparition in Mr. Vincey's rooms, the missing gentleman had rushed out of the gates of the Albany into Vigo Street, hatless and with disordered hair, and had vanished into the direction of Bond Street. "And as he went past me," said the porter, "he laughed—a sort of gasping laugh, with his mouth open and his eyes glaring—I tell you, sir, he fair scared me!—like this."

According to his imitation it was anything but a pleasant laugh. "He waved his hand, with all his fingers crooked and clawing—like that. And he said, in a sort of fierce whisper, '*Life!*' Just that one word, '*Life!*'"

"Dear me," said Mr. Vincey. "Tut, tut," and "Dear me!" He could think of nothing else to say. He was naturally very much surprised. He turned from the room to the porter and from the porter to the room in the gravest perplexity. Beyond his suggestion that probably Mr. Bessel would come back presently and explain what had happened, their conversation was unable to proceed. "It might be a sudden toothache," said the porter, "a very sudden and violent toothache, jumping on him suddenly-like and driving him wild. I've broken things myself before now in such a case. . . ." He thought, "If it was, why should he say '*life*' to me as he went past?"

Mr. Vincey did not know. Mr. Bessel did not return, and at last Mr. Vincey, having done some more helpless staring, and having addressed a note of brief inquiry and left it in a conspicuous position on the bureau, returned in a very perplexed frame of mind to his own premises in Staple Inn. This affair had given him a shock. He was at a loss to account for Mr. Bessel's conduct on any sane hypothesis. He tried to read, but he could not do so; he went for a

short walk, and was so preoccupied that he narrowly escaped a cab at the top of Chancery Lane; and at last—a full hour before his usual time—he went to bed. For a considerable time he could not sleep because of his memory of the silent confusion of Mr. Bessel's apartment, and when at

length he did attain an uneasy slumber it was at once disturbed by a very vivid and distressing dream of Mr. Bessel.

He saw Mr. Bessel gesticulating wildly, and with his face white and contorted. And, inexplicably mingled with his appearance, suggested perhaps by his gestures, was an intense fear, an urgency to act. He even believes that he heard the voice of his fellow experimenter calling distressfully to him, though at the time he considered this to be an illusion. The vivid impression remained though Mr. Vincey awoke.

HERE is an unusual story by the well-known author. Unless the reader should jump to a conclusion, we believe it safe to say that to the best of our knowledge, H. G. Wells is not a believer in Spiritualism. This story rather is based on psychic assumptions and as such, we believe that it deserves your attention. It is most interesting from many standpoints and is based upon solid scientific reasoning, particularly from the hypnotic viewpoint.

For a space he lay awake and trembling in the darkness, possessed with that vague, unaccountable terror of unknown possibilities that comes out of dreams upon even the bravest men. But at last he roused himself, and turned over and went to sleep again, only for the dream to return with enhanced vividness.

He awoke with such a strong conviction that Mr. Bessel was in overwhelming distress and need of help that sleep was no longer possible. He was persuaded that his friend had rushed out to some dire calamity. For a time he lay reasoning vainly against this belief, but at last he gave way to it. He arose, against all reason, lit his gas and dressed, and set out through the deserted streets—deserted, save for a noiseless policeman or so and the early news carts—towards Vigo Street to inquire if Mr. Bessel had returned.

BUT he never got there. As he was going down Long Acre some unaccountable impulse turned him aside out of that street towards Covent Garden, which was just waking to its nocturnal activities. He saw the market in front of him—a queer effect of glowing yellow lights and busy black figures. He became aware of a shouting, and perceived a figure turn the corner by the hotel and run swiftly towards him. He knew at once that it was Mr. Bessel. But it was Mr. Bessel transfigured. He was hatless and dishevelled, his collar was torn open, he grasped a bone-handled walking-cane near the ferrule end, and his mouth was pulled awry. And he ran, with agile strides, very rapidly. Their encounter was the affair of an instant. "Bessel!" cried Vincey.

The running man gave no sign of recognition either of Mr. Vincey or of his own name. Instead, he cut at his friend savagely with the stick, hitting him in the face within an inch of the eye. Mr. Vincey, stunned and astonished, staggered back, lost his footing, and fell heavily on the pavement. It seemed to him that Mr. Bessel leapt over him as he fell. When he looked again Mr. Bessel had vanished, and a policeman and a number of garden porters and salesmen were rushing past towards Long Acre in hot pursuit.

With the assistance of several passers-by—for the whole street was speedily alive with running people—Mr. Vincey struggled to his feet. He at once became the centre of a crowd greedy to see his injury. A multitude of voices competed to reassure him of his safety, and then to tell him of the behaviour of the madman, as they regarded Mr. Bessel. He had suddenly appeared in the middle of the market screaming "*Life! Life!*" striking right and left with a blood-stained walking-stick, and dancing and shouting with laughter at each successful blow. A lad and two women had broken heads, and he had smashed a man's wrist; a little child had been knocked insensible, and for a time he had driven every one before him, so furious and resolute had his behaviour been. Then he made a raid upon a coffee stall, hurled its paraffin flare through the window of the post office, and fled laughing, after stunning the foremost of the two policemen who had the pluck to charge him.

Mr. Vincey's first impulse was naturally to join in the pursuit of his friend, in order, if possible, to save him from the violence of the indignant people. But his action was slow, the blow had half stunned him, and while this was still no more than a resolution, came the news, shouted through the crowd,

that Mr. Bessel had eluded his pursuers. At first Mr. Vincey could scarcely credit this, but the universality of the report, and presently the dignified return of two futile policemen, convinced him. After some aimless inquiries he returned towards Staple Inn, padding a handkerchief to a now very painful nose.

He was angry and astonished and perplexed. It appeared to him indisputable that Mr. Bessel must have gone violently mad in the midst of his experiment in thought transference, but why that should make him appear with a sad white face in Mr. Vincey's dreams seemed a problem beyond solution. He racked his brains in vain to explain this. It seemed to him at last that not simply Mr. Bessel, but the order of things must be insane. But he could think of nothing to do. He shut himself carefully into his room, lit his fire—it was a gas fire with asbestos bricks—and, fearing fresh dreams if he went to bed, remained bathing his injured face, or holding up books in a vain attempt to read until dawn. Throughout that vigil he had a curious persuasion that Mr. Bessel was endeavouring to speak to him, but he would not let himself attend to any such belief.

About dawn, his physical fatigue asserted itself, and he went to bed and slept at last in spite of dreaming. He rose late, unrested and anxious and in considerable facial pain. The morning papers had no news of Mr. Bessel's aberration—it had come too late for them. Mr. Vincey's perplexities, to which the fever of his bruise added fresh irritation, became at last intolerable, and, after a fruitless visit to the Albany, he went down to St. Paul's Churchyard to Mr. Hart, Mr. Bessel's partner, and so far as Mr. Vincey knew, his nearest friend.

He was surprised to learn that Mr. Hart, although he knew nothing of the outbreak, had also been disturbed by a vision, the very vision that Mr. Vincey had seen—Mr. Bessel, white and dishevelled, pleading earnestly by his gestures for help. That was his impression of the import of his signs. "I was just going to look him up in the Albany when you arrived," said Mr. Hart. "I was so sure of something being wrong with him."

As the outcome of their consultation, the two gentlemen decided to inquire at Scotland Yard for news of their missing friend. "He is bound to be laid by the heels," said Mr. Hart. "He can't go on at that pace for long." But the police authorities had not laid Mr. Bessel by the heels. They confirmed Mr. Vincey's overnight experiences and added fresh circumstances, some of an even graver character than those he knew—a list of smashed glass along the upper half of Tottenham Court Road, an attack upon a policeman in Hampstead Road, and an atrocious assault upon a woman. All these outrages were committed between half-past twelve and a quarter to two in the morning, and between those hours—and, indeed, from the very moment of Mr. Bessel's first rush from his rooms at half-past nine in the evening—they could trace the deepening violence of his fantastic career. For the last hour, at least from before one, that is, until a quarter to two, he had run amuck through London, eluding with amazing agility every effort to stop or capture him.

But after a quarter to two he had vanished. Up to that hour witnesses were multitudinous. Dozens of people had seen him, fled from him or pursued him, and then things suddenly came to an end. At a quarter to two he had been seen running down the

Euston Road towards Baker Street, flourishing a can of burning colza oil and jerking splashes of flame therefrom at the windows of the houses he passed. But none of the policemen on Euston Road beyond the Waxwork Exhibition, nor any of those in the side streets down which he must have passed had he left the Euston Road, had seen anything of him. Abruptly he disappeared. Nothing of his subsequent doings came to light, in spite of the keenest inquiry.

Here was a fresh astonishment for Mr. Vincey. He had found considerable comfort in Mr. Hart's conviction, "He is bound to be laid by the heels before long," and in that assurance he had been able to suspend his mental perplexities. But any fresh development seemed destined to add new impossibilities to a pile already heaped beyond the powers of his acceptance. He found himself doubting whether his memory might not have played him some grotesque trick, debating whether any of these things could possibly have happened; and in the afternoon he hunted up Mr. Hart again to share the intolerable weight on his mind. He found Mr. Hart engaged with a well-known private detective, but as that gentleman accomplished nothing in this case, we need not enlarge upon his proceedings.

All that day Mr. Bessel's whereabouts eluded an unceasingly active inquiry, and all that night. And all that day there was a persuasion in the back of Mr. Vincey's mind that Mr. Bessel sought his attention, and all through the night Mr. Bessel with a tear-stained face of anguish pursued him through his dreams. And whenever he saw Mr. Bessel in his dreams he also saw a number of other faces, vague but malignant, that seemed to be pursuing Mr. Bessel.

IT was on the following day, Sunday, that Mr. Vincey recalled certain remarkable stories of Mrs. Bullock, the medium, who was then attracting attention for the first time in London. He determined to consult her. She was staying at the house of that well-known inquirer, Dr. Wilson Paget, and Mr. Vincey, although he had never met that gentleman before, repaired to him forthwith with the intention of invoking her help. But scarcely had he mentioned the name of Bessel when Doctor Paget interrupted him. "Last night—just at the end," he said, "we had a communication."

He left the room, and returned with a slate on which were certain words written in a handwriting, shaky indeed, but indisputably the handwriting of Mr. Bessel!

"How did you get this?" said Mr. Vincey. "Do you mean?"

"We got it last night," said Doctor Paget. With numerous interruptions from Mr. Vincey, he proceeded to explain how the writing had been obtained. It appears that in her *séances*, Mrs. Bullock passes into a condition of trance, her eyes rolling up in a strange way under her eyelids, and her body becoming rigid. She then begins to talk very rapidly, usually in voices other than her own. At the same time one or both of her hands may become active, and if slates and pencils are provided they will then write messages simultaneously with and quite independently of the flow of words from her mouth. By many she is considered an even more remarkable medium than the celebrated Mrs. Piper. It was one of these messages, the one written by her left

hand, that Mr. Vincey now had before him. It consisted of eight words written disconnectedly "George Bessel . . . trial excav" . . . Baker Street . . . help . . . starvation." Curiously enough, neither Doctor Paget nor the two other inquirers who were present had heard of the disappearance of Mr. Bessel—the news of it appeared only in the evening papers of Saturday—and they had put the message aside with many others of a vague and enigmatical sort that Mrs. Bullock has from time to time delivered.

When Doctor Paget heard Mr. Vincey's story, he gave himself at once with great energy to the pursuit of this clue to the discovery of Mr. Bessel. It would serve no useful purpose here to describe the inquiries of Mr. Vincey and himself; suffice it that the clue was a genuine one, and that Mr. Bessel was actually discovered by its aid.

He was found at the bottom of a detached shaft which had been sunk and abandoned at the commencement of the work for the new electric railway near Baker Street Station. His arm and leg and two ribs were broken. The shaft is protected by a boarding nearly 20 ft. high, and over this, incredible as it seems, Mr. Bessel, a stout, middle-aged gentleman, must have scrambled in order to fall down the shaft. He was saturated in colza oil, and the smashed tin lay beside him, but luckily the flame had been extinguished by his fall. And his madness had passed from him altogether. But he was, of course, terribly enfeebled, and at the sight of his rescuers he gave way to hysterical weeping.

In view of the deplorable state of his flat, he was taken to the house of Dr. Hatton in Upper Baker Street. Here he was subjected to a sedative treatment, and anything that might recall the violent crisis through which he had passed was carefully avoided. But on the second day he volunteered a statement.

Since that occasion Mr. Bessel has several times repeated this statement—to myself among other people—varying the details as the narrator of real experiences always does, but never by any chance contradicting himself in any particular. And the statement he makes is in substance as follows.

In order to understand it clearly, it is necessary to go back to his experiments with Mr. Vincey before his remarkable attack. Mr. Bessel's first attempts at self-projection, in his experiments with Mr. Vincey, were, as the reader will remember, unsuccessful. But through all of them he was concentrating all his power and will upon getting out of the body—"willing it with all my might," he says. At last, almost against expectation, came success. And Mr. Bessel asserts that he, being alive, did actually, by an effort of will, leave his body and pass into some place or state outside this world.

The release was, he asserts, instantaneous. "At one moment I was seated in my chair, with my eyes tightly shut, my hands gripping the arms of the chair, doing all I could to concentrate my mind on Vincey, and then I perceived myself outside my body—saw my body near me, but certainly not containing me, with the hands relaxing and the head drooping forward on the breast."

Nothing shakes him in his assurance of that release. He describes in a quiet, matter-of-fact way the new sensation he experienced. He felt he had become impalpable—so much he had expected, but he had not expected to find himself enormously large. So, however, it would seem he became. "I was a great cloud—if I may express it that way—anchored

to my body. It appeared to me, at first, as if I had discovered a greater self of which the conscious being in my brain was only a little part. I saw the Albany and Piccadilly and Regent Street and all the rooms and places in the houses, very minute and very bright and distinct, spread out below me like a little city seen from a balloon. Every now and then vague shapes like drifting wreaths of smoke made the vision a little indistinct, but at first I paid little heed to them. The thing that astonished me most, and which astonishes me still, is that I saw quite distinctly the insides of the houses as well as the streets, saw little people dining and talking in the private houses, men and women dining, playing billiards, and drinking in restaurants and hotels, and several places of entertainment crammed with people. It was like watching the affairs of a glass hive."

Such were Mr. Bessel's exact words as I took them down when he told me the story. Quite forgetful of Mr. Vincey, he remained for a space observing these things. Impelled by curiosity, he says, he stooped down and with the shadowy arm he found himself possessed of attempting to touch a man walking along Vigo Street. But he could not do so, though his finger seemed to pass through the man. Something prevented his doing this, but what it was he finds it hard to describe. He compares the obstacle to a sheet of glass.

"I FELT as a kitten may feel," he said, "when it goes for the first time to pat its reflection in a mirror." Again and again, on the occasion when I heard him tell this story, Mr. Bessel returned to that comparison of the sheet of glass. Yet it was not altogether a precise comparison, because, as the reader will speedily see, there were interruptions of this generally impermeable resistance, means of getting through the barrier to the material world again. But, naturally, there is a very great difficulty in expressing these unprecedented impressions in the language of everyday experience.

A thing that impressed him instantly, and which weighed upon him throughout all this experience, was the stillness of this place—he was in a world without sound.

At first Mr. Bessel's mental state was an unemotional wonder. His thought chiefly concerned itself with where he might be. He was out of the body—out of his material body, at any rate—but that was not all. He believes, and I for one believe also, that he was somewhere out of space, as we understand it, altogether. By a strenuous effort of will he had passed out of his body into a world beyond this world, a world undreamt of, yet lying so close to it and so strangely situated with regard to it that all things on this earth are clearly visible both from without and from within in this other world about us. For a long time, as it seemed to him, this realisation occupied his mind to the exclusion of all other matters, and then he recalled the engagement with Mr. Vincey, to which this astonishing experience was, after all, but a prelude.

He turned his mind to locomotion in this new body in which he found himself. For a time he was unable to shift himself from his attachment to his earthly carcass. For a time this new strange cloud body of his simply swayed, contracted, expanded, coiled, and writhed with his efforts to free himself, and then quite suddenly the link that bound him snapped. For a moment everything was hidden by

what appeared to be whirling spheres of dark vapour, and then through a momentary gap he saw his drooping body collapse limply, saw his lifeless head drop sideways, and found he was driving along like a huge cloud in a strange place of shadowy clouds that had the luminous intricacy of London spread like a model below.

But now he was aware that the fluctuating vapour about him was something more than vapour, and the temerarious excitement of his first essay was shot with fear. For he perceived, at first indistinctly, and then suddenly very clearly, that he was surrounded by *faces!* that each roll and coil of the seeming cloud-stuff was a face. And such faces! Faces of thin shadow, faces of gaseous tenuity. Faces like those faces that glare with intolerable strangeness upon the sleeper in the evil hours of his dreams. Evil, greedy eyes that were full of a covetous curiosity, faces with knit brows and snaring, smiling lips; their vague hands clutched at Mr. Bessel as he passed, and the rest of their bodies was but an elusive streak of trailing darkness. Never a word they said, never a sound from the mouths that seemed to gibber. All about him they pressed in that dreamy silence, passing freely through the dim mistiness that was his body, gathering ever more numerous about him. And the shadowy Mr. Bessel, now suddenly fear-stricken, drove through the silent, active multitude of eyes and clutching hands.

So inhuman were these faces, so malignant their staring eyes, and shadowy, clawing gestures, that it did not occur to Mr. Bessel to attempt intercourse with these drifting creatures. Idiot phantoms, they seemed, children of vain desire, beings unborn and forbidden the boon of being, whose only expressions and gestures told of the envy and craving for life that was their one link with existence.

It says much for his resolution that, amidst the swarming cloud of these noiseless spirits of evil, he could still think of Mr. Vincey. He made a violent effort of will and found himself, he knew not how, stooping towards Staple Inn, saw Vincey sitting attentive and alert in his arm-chair by the fire.

And clustering also about him, as they clustered ever about all that lives and breathes, was another multitude of these vain voiceless shadows, longing, desiring, seeking some loophole into life.

For a space Mr. Bessel sought ineffectually to attract his friend's attention. He tried to get in front of his eyes, to move the objects in his room, to touch him. But Mr. Vincey remained unaffected, ignorant of the being that was so close to his own. The strange something that Mr. Bessel has compared to a sheet of glass separated them impermeably.

And at last Mr. Bessel did a desperate thing. I have told how that in some strange way he could see not only the outside of a man as we see him, but within. He extended his shadowy hand and thrust his vague black fingers, as it seemed, through the heedless brain.

Then, suddenly, Mr. Vincey started like a man who recalls his attention from wandering thoughts, and it seemed to Mr. Bessel that a little dark-red body situated in the middle of Mr. Vincey's brain swelled and glowed as he did so. Since that experience he has been shown anatomical figures of the brain, and he knows now that this is that useless structure, as doctors call it, the pineal eye. For, strange as it will seem to many, we have, deep in our brains—where it cannot possibly see any earthly light

—an eye! At the time this, with the rest of the internal anatomy of the brain, was quite new to him. At the sight of its changed appearance, however, he thrust forth his finger, and, rather fearful still of the consequences, touched this little spot. And instantly Mr. Vincey started, and Mr. Bessel knew that he was seen.

And at that instant it came to Mr. Bessel that evil had happened to his body, and behold! a great wind blew through all that world of shadows and tore him away. So strong was this persuasion that he thought no more of Mr. Vincey, but turned about forthwith, and all the countless faces drove back with him like leaves before a gale. But he returned too late. In an instant he saw the body that he had left inert and collapsed—lying, indeed, like the body of a man just dead—had arisen by virtue of some strength and will beyond his own. It stood with staring eyes, stretching its limbs in dubious fashion.

For a moment he watched it in wild dismay, and then he stooped towards it. But the pane of glass had closed against him again, and he was foiled. He beat himself passionately against this, and all about him the spirits of evil grinned and pointed and mocked. He gave way to furious anger. He compares himself to a bird that has fluttered heedlessly into a room and is beating at the window-pane that holds it back from freedom.

And behold! the little body that had once been his was now dancing with delight. He saw it shouting, though he could not hear its shouts; he saw the violence of its movements grow. He watched it fling his cherished furniture about in the mad delight of existence, rend his books apart, smash bottles, drink heedlessly from the jagged fragments, leap and smite in a passionate acceptance of living. He watched these actions in paralysed astonishment. Then once more he hurled himself against the impassable barrier, and then, with all that crew of mocking ghosts about him, hurried back in dire confusion to Vincey to tell him of the outrage that had come upon him.

But the brain of Vincey was now closed against apparitions, and the disembodied Mr. Bessel pursued him in vain as he hurried out into Holborn to call a cab. Foiled and terror-stricken, Mr. Bessel swept back again, to find his desecrated body whooping in a glorious frenzy down the Burlington Arcade. . . .

AND now the attentive reader begins to understand Mr. Bessel's interpretation of the first part of this strange story. The being whose frantic rush through London had inflicted so much injury and disaster had indeed Mr. Bessel's body, but it was not Mr. Bessel. It was an evil spirit out of that strange world beyond existence, into which Mr. Bessel had so rashly ventured. For twenty hours it held possession of him, and for all those twenty hours the dispossessed spirit-body of Mr. Bessel was going to and fro in that unheard-of middle world of shadows seeking help in vain.

He spent many hours beating at the minds of Mr. Vincey and of his friend Mr. Hart. Each, as we know, he roused by his efforts. But the language that might convey his situation to these helpers across the gulf he did not know; his feeble fingers groped vainly and powerlessly in their brains. Once, indeed, as we have already told, he was able to turn Mr. Vincey aside from his path so that he encoun-

tered the stolen body in its career, but he could not make him understand the thing that had happened: he was unable to draw any help from that encounter. . . .

All through those hours the persuasion was overwhelming in Mr. Bessel's mind that presently his body would be killed by its furious tenant, and he would have to remain in this shadow-land for evermore. So that those long hours were a growing agony of fear. And ever as he hurried to and fro in his ineffectual excitement innumerable spirits of that world about him mobbed him and confused his mind. And ever an envious applauding multitude poured after their successful fellow as he went upon his glorious career.

For that, it would seem, must be the life of these bodiless things of this world that is the shadow of our world. Ever they watch, coveting a way into a mortal body, in order that they may descend, as furies and frenzies, as violent lusts and mad, strange impulses, rejoicing in the body they have won. For Mr. Bessel was not the only human soul in that place. Witness the fact that he met first one, and afterwards several shadows of men, men like himself, it seemed, who had lost their bodies even it may be as he had lost his, and wandered, despairingly, in that lost world that is neither life nor death. They could not speak because that world is silent, yet he knew them for men because of their dim human bodies, and because of the sadness of their faces.

But how they had come into that world he could not tell, nor where the bodies they had lost might be, whether they still raved about the earth, or whether they were closed for ever in death against return. That they were the spirits of the dead neither he nor I believe. But Doctor Wilson Paget thinks they are the rational souls of men who are lost in madness on the earth.

At last Mr. Bessel chanced upon a place where a little crowd of such disembodied silent creatures was gathered, and thrusting through them he saw below a brightly-lit room, and four or five quiet gentlemen and a woman, a stoutish woman dressed in black bombazine and sitting awkwardly in a chair with her head thrown back. He knew her from her portraits to be Mrs. Bullock, the medium. And he perceived that tracts and structures in her brain glowed and stirred as he had seen the pineal eye in the brain of Mr. Vincey glow. The light was very fitful; sometimes it was a broad illumination, and sometimes merely a faint twilight spot, and it shifted slowly about her brain. She kept on talking and writing with one hand. And Mr. Bessel saw that the crowding shadows of men about him, and a great multitude of the shadow spirits of that shadow-land, were all striving and thrusting to touch the lighted regions of her brain. As one gained her brain or another was thrust away, her voice and the writing of her hand changed. So that what she said was disorderly and confused for the most part; now a fragment of one soul's message, and now a fragment of another's, and now she babbled the insane fancies of the spirits of vain desire. Then Mr. Bessel understood that she spoke for the spirit that had touch of her, and he began to struggle very furiously towards her. But he was on the outside of the crowd and at that time he could not reach her, and at last, growing anxious, he went away to find what had happened meanwhile to his body.

For a long time he went to and fro seeking it in

vain and fearing that it must have been killed, and then he found it at the bottom of the shaft in Baker Street, writhing furiously and cursing with pain. Its leg and arm and two ribs had been broken by its fall. Moreover, the evil spirit was angry because his time had been so short and because of the pain—making violent movements and casting his body about.

And at that Mr. Bessel returned with redoubled earnestness to the room where the *séance* was going on, and so soon as he had thrust himself within sight of the place he saw one of the men who stood about the medium looking at his watch as if he meant that the *séance* should presently end. At that a great number of the shadows who had been striving turned away with gestures of despair. But the thought that the *séance* was almost over only made Mr. Bessel the more earnest, and he struggled so stoutly with his will against the others that presently he gained the woman's brain. It chanced that just at that moment it glowed very brightly, and in that instant she wrote the message that Doctor Wilson Paget preserved. And then the other shadows and the cloud of evil spirits about him had thrust Mr. Bessel away from

her, and for all the rest of the *séance* he could regain her no more.

So he went back and watched through the long hours at the bottom of the shaft where the evil spirit lay in the stolen body it had maimed, writhing and cursing, and weeping and groaning, and learning the lesson of pain. And towards dawn the thing he had waited for happened, the brain glowed brightly and the evil spirit came out, and Mr. Bessel entered the body he had feared he should never enter again. As he did so, the silence—the brooding silence—ended; he heard the tumult of traffic and the voices of people overhead, and that strange world that is the shadow of our world—the dark and silent shadows of ineffectual desire and the shadows of lost men—vanished clean away.

He lay there for the space of about three hours before he was found. And in spite of the pain and suffering of his wounds, and of the dim damp place in which he lay; in spite of the tears—wrung from him by his physical distress—his heart was full of gladness to know that he was nevertheless back once more in the kindly world of men.

THE END



In this department we shall discuss, every month, topics of interest to readers. The editors invite correspondence on all subjects directly or indirectly related to the stories appearing in this magazine. In case a special personal answer is required, a nominal fee of 25c to cover time and postage is required.

TIME AND THE FOURTH DIMENSION. A DISAGREEMENT WITH A. HYATT VERRILL.

Editor, AMAZING STORIES:

For the first time in my life I am writing to the editor of a magazine, to comment on its contents.

Excepting "sex" and "Western" tales, my taste in reading is catholic. I can enjoy almost any stories that can "get by" an astute editor with the interest of his readers and his magazine at heart. Therefore, when incidents in a story clash with my sense of the fitness of things, I assume that I have a legitimate "kick," which must undoubtedly interest readers, authors and editor.

From the standpoint of fiction, all your stories are good, as they are also from the standpoint of mental stimulus—they compel thought. So far, then, your stories entertain the reader and benefit him mentally, by the intellectual activity involved.

However, your stories are scientification and, therefore, as Mr. Riordan, of Flagstaff, Arizona, so aptly remarks, should contain nothing contrary to known scientific facts, or that is intrinsically impossible. Some of your authors persist in violating this indisputable canon.

H. G. Wells, with his "Time Machine," was the pioneer in this line. Most of my remarks today will be directed against the fantastic supposition that one's place in time may, or can be changed voluntarily, as readily as can one's position in space; further, I shall also try to prove that time has real existence and is not a mere arbitrary conception foisted by man upon his easily-deluded self; finally, I shall contradict some statements contributed to the general fund of fallacy by the mythical "Dr. Mentiroso."

The first two points are indissolubly connected. In the discussion of time we have to differentiate between time as an entity—that which exists of itself and our notions and measurements of time. I agree with your authors that time is infinite in both directions. Thus, there is a connection between past, present and future; the past is never dead; in the sense that things in the present are so because of the impress of events in past time; likewise, the future will be what it will be because of the impress of events, both past and present. However, when tomorrow comes, today, with all its events, is a thing of the past which lives only in the consequences of the events. The future will never be what it might have been but for today;

but it is as impossible to actually re-live today, as for one of us to return to the embryo condition.

The rays of light that enabled a Norman archer to see to aim the arrow which killed Harold of England, are still speeding on their way through space. It is logically "scientificfiction" to consider overtaking them, perhaps to see again the same scene, but as for our being able to return to that distant past and "hob-nob" with Harold and Duke William, that is such sheer nonsense that the conception savors of the thrice-distilled essence of humbug! Doubtless, our ancestors have bequeathed to us some memory of their own particular ages; thus it is quite possible to visit, in a visionary sense, any past age; but it cannot be done *in corpore*. (This reasoning is so elementary that I cannot conceive of its being contradicted.)

Every event has its antecedents. There must be a cause for every effect, and the former necessarily precedes the latter. It is unthinkable that it could be otherwise. My being here is not the cause of the survival of my ancestors, but the reverse is true. Between the cause and the effect there is an interval of time, usually measurable and . . . therefore, there is an advance in time forward. It is absolutely impossible *per se*, to go back in time and resume the *status quo ante*.

Now is now, although it is 7 p. m., Monday, here, and 2 a. m., Tuesday, in England; October 10th, 1927, A. D., here, something else in Russia, Arabia or Palestine. Whether we use yards or metres in measuring the length of a cow's tail its length is a fixed quantity at any fixed point in time, and the tuft of hair is on the same end.

Despite our habit of impoverishing the earth by our antiquated mode of disposing of human remains, it falls to the lot of some particles of matter to be incorporated in several bodies in turn. (In such a sense, most of us have at least some elements of greatness in our composition.) Now, is it not absurd to consider that a particle of matter can occupy two positions in space at one and the same time?

Could I journey back in time and space to the field of Waterloo (I have eaten vegetables grown nearby, and thus probably have incorporated—say as part of my osseous structure—part of His Grace

the Duke of Wellington), on that fateful day in 1815, would I or the Duke be minus that molecule of matter? Why, I might travel in my time machine sixty years into the past, kill my grandfather before the conception of my father, and thus resolve myself into oblivion!

Excursions into the future are just as ridiculous. An excursion into interplanetary space might, nay, doubtless would, play havoc with one's time sense, which might or might not be subject to a return to normalcy upon a resumption of life on earth. Time, however, as an entity will have progressed quite regularly independent of time, sense or measurements.

The crowning absurdity of all is to consider the possibility of one who will not exist as an entity for thirty thousand years, digging up and articulating my poor bones and then taking a little trip in his time-machine, to discover those self-same bones clothed with the living flesh!

I think, as regards the first two points, I have established my case beyond comment, except as regards crudities of style and elementary nature of proof, both due to my exceedingly "slim" (not in the Africander sense) grounding in mathematics and kindred sciences.

Now, to Dr. Mentiroso: "A mathematical line, a mathematical plane, does not exist and, hence, a mathematical cube or parallelogram cannot exist. . . ." Nonsense! A mathematical line is not a mere mark, but the distance between two points in space, therefore absolutely real, independent of methods of making its position apparent. A mathematical plane is a boundary of a solid—using the term "solid" to mean a three-dimensional object filling a certain portion of space—therefore, a plane is a real thing. Dr. Mentiroso makes no distinction between concrete and abstract existence. Lines and planes are abstract, in the sense that they cannot exist apart from the objects associated with them.

Again, " . . . as a circle has neither length, breadth or thickness, it must, of necessity, possess a fourth dimension." Admitting the validity of the premises, the conclusion is not obvious; it certainly doesn't follow from the premises; a point has neither length, breadth or thickness, yet it certainly isn't four-dimensional. However, the premises are incorrect. A circle is two-dimensional.

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As for "transforming circles to length breadth, and triangles or parallelograms to and pyramids," it cannot be done. Length breadth cannot be derived from area, nor volume be derived from planes. Such, at least, the conviction implanted in my mind by a recent professor of mathematics, and I have planted the same conviction in the minds of pupils.

Despite the eminence in the world of letters of the author of "The Discoveries of Dr. Mentiroso," I fail to see how the rotations and revolutions of planetary or stellar bodies, or electrons, are dependent on the existence of a fourth dimension. The latter was originally, I believe, a conception introduced to facilitate the working of certain problems in higher mathematics. Einstein has, I gather from hearsay, given the fourth dimension official sanction, and—again I speak from hearsay—identifies it with time. There's no more reason for calling time a fourth dimension than there is for calling weight, mass or energy a fourth dimension.

It may be possible to prove to some peoples' satisfaction that parallel lines meet at infinity, but not to mine. Parallel lines do not meet if produced either way for any finite length; after all, lines of infinite length are theoretically resolvable into lines of finite length. We are, then, to suppose that the last finite portions of the parallel lines curve towards each other, or they are not continuations of the parallel lines. Either, then, to my way of thinking, the lines are not parallel, or they do not meet at infinity.

I don't see any objections to Dr. Mentiroso's conquest of gravity. The removal of the latter's influence might cause the works of his watch to perform strange antics. Outside of that, I cannot fathom the meaning of the worthy doctor's experiences; but I am adequately convinced that he will have to "go some" to arrive back on *terra firma* in 1899!

Now, you have "started something." It is possible to make your magazine the focal point to which all of us can come to get correct notions of physical, chemical, or astronomical science, to which we can bring our ideas for dissemination, in which any one of us might find the missing link in a chain of reasoning, through which we might come in contact with kindred spirits working along the same lines as ourselves. You don't want to be responsible for one of us getting thrown off at a tangent, or rather, side-tracked, from the correct line of thought by some pseudo-scientific statement accepted by one as the "real McCoy."

My letter has grown to an inordinate length. I don't expect you can afford it space. Should you print it however, don't leave out my name and address. I do not approve of anonymous letters.

Meanwhile, I remain an enthusiastic reader of your magazine. Best wishes,

Thomas H. Cassidy,
Chancellor, Alberta, Can.

[It is quite interesting to see how such stories as the "Time Machine," and the recital of Dr. Mentiroso's achievement, have operated to evolve discussion and expressions of widely differing opinions from our readers. In one of Edgar A. Poe's stories, the difference of time between different meridians of the earth and the twenty-four hour difference which may be evolved in a complete circumnavigation of the globe, is utilized to bring three Sundays into one week, and to win a girl for the hero of the story. Dr. Mentiroso has started many of our readers thinking about the difference of time upon our sphere. It is exactly in the awakening of such intelligent, interesting criticism that our magazine does most good and effective work. The Duke of Wellington did not die on the field of Waterloo.—EDITOR.]

DR. MENTIROSO AND HIS DISCOVERIES. THE SCIENCE CLUB

Editor, AMAZING STORIES:

I have read with considerable interest A. Hyatt Verrill's story in the November number of AMAZING STORIES, "The Astounding Discoveries of Doctor Mentiroso" seems astounding, indeed. It seems to me, that the key to the entire affair lies in the name given to the mysterious force of the fourth dimension; Esnesnon, or nonsense, "Fenomeno Mentiroso" had a phenomenal mentality, indeed, as the name seems to indicate, if he believed that by merely traveling at a tremendous speed he could move into the past or the future. His logic seems sound, at first glance, but he reasons from a faulty premise.

I would like to obtain some information on the International Science Club. Who are its members? What is its object? What does it actually do, and how does one become a member? In other words, tell me all about it, please. I am nineteen years of age, and greatly interested in things scientific.

E. T. Price,
1317 S. Howard Ave.,
Tampa, Fla.

[The word "Mentiroso" has nothing to do with the Latin word *mens*, or "mind," or the English word "mentality," but is a Spanish adjective meaning "lying." In other words, the doctor's name indicates a "lying phenomenon." That ought to satisfy you as to all his eccentricities. The Science Club is not yet ready to be reported on. It is waiting for some of our readers to start its organization, for that work has to be done by them. AMAZING STORIES will be glad to give it its fullest support.—EDITOR.]



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AN INTERESTING LETTER FOR OUR DISCUSSION COLUMNS BY AN APPRECIATIVE CONTRIBUTOR THERETO

Editor, AMAZING STORIES:

I have just finished reading the November issue of *AMAZING STORIES*, and I cannot refrain from telling you that it has given me a really unexpected amount of pleasure. I went over the "Discussions" first, and I am, to say the least, impressed. I'll admit right here, that I got a kick out of seeing my own little pet grievance against H. G. Wells laid before the rest of *AMAZING STORIES'* audience, and I want to say here, that my criticism of his "War of the Worlds," is not directed at the story itself, but at the way in which it is told. I notice that others besides myself have been rubbed the wrong way by that selfsame story, and apparently for the same reasons. The thing is clogged up to a "fare-you-well" with a lot of deadwood, which very effectively nullifies any appeal it may otherwise carry. I hardly agree with you that, just because Mr. Wells' mere name carries such force and weight in the literary world, he should be upheld for such gross imposition on the good nature of your readers. That one story of his is a bore; but there are a few other things I want to say, so I'll let H. G. Wells go at that, and give our friend, Bernard Shaw, writing for the Hearst papers, and Struthers Burt, holding forth in *The Saturday Evening Post* a chance to have their say; they are, at any rate, more capable along this line than I am.

Having that off my mind, I wish to make myself heard in the opposite direction now. I want to commend and heartily endorse the Messrs. Ray Cummings, Garret Smith, A. Hyatt Verrill, A. Merritt, E. R. Burroughs, et al., for the really great stories they have given us. Surely, *AMAZING STORIES* should prosper as long as you have writers like these, and as long as they continue giving their readers the same high-grade products they have turned out thus far through its pages. I may also add, just to square myself with Mr. Wells, that his last offering, "A Story of the Stone Age," was unexpectedly good.

There is one story in the November issue upon which I would like to make comment. "The Astonishing Discoveries of Doctor Mentiroso," by Mr. Verrill. This tale, besides being extremely well told, has given me a lot of food for thought. Let me explain that, until now, I haven't given much thought or attention to such things as a "Fourth-Dimension." Like most of our fellow-beings, who are unable to grasp the meaning of this new "Monster," I have passed the thing up. I'll admit that my wits weren't quite sharp enough to make head or tail of such an unreasonably complicated mess, as it seemed to be. Like many others, I reasoned that all of us weren't Einsteins. This reasoning seems ridiculous to me now, since Mr. Verrill, so to say, let in the light. I'll still own up to the fact that I'm no Einstein; however, I am able to understand now, I think, what he may have been talking about.

Funny, isn't it! And to think that I have for the last dozen years constantly been in touch with this thing which I'm just beginning to see clearly. To further enlighten you, I'll tell you, that I am a telegraph operator. I think that's 'nuff sed, don't you? Ever since I got into that game, I've been, as I realize now, so to say, living in three different spheres or divisions of "Time." The Present, the Past, and the Future.

Do you see what I'm driving at? Say, for instance, I'm working a Chicago-New York circuit out of Chicago; the difference is one hour in the future, yet the telegraph being instantaneous, I am able to be both in My Present, and New York's Present (My Future), at the same instant; of course, not personally but, nevertheless, I'm present both here and in New York at the same time. The opposite happens when I happen to work a westbound circuit; say Chicago-Los Angeles. I am in that case, able to reach two hours into My Past; of course, not into My Own past life, but into the past, nevertheless. Am I right? Strange that I could never figure out that much before! Mr. Verrill's story certainly is an eye-opener!

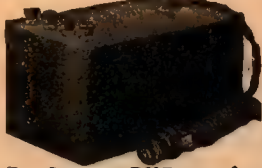
I can easily see and understand now, this same time element as Mr. Garret Smith sets it forth in his "Treasures of Tantalus;" I refer to the part where he weaves in the star "Tantalus" so masterfully.

Isn't it, after all, just logical to expect that after he has, in the person of Prof. Rufus Fleckner, invented the wonderful, and to my mind, not at all impossible "Telephonoscope," with which he is able to pierce the privacy of our own globe's inhabitants, and lay bare this little old planet's secrets in its every nook and corner, that he should also be able to pry into the affairs of other worlds? If not, why not?

I have stated in my previous letter that I'm not of a scientific turn of mind; still that hasn't prevented me from picking up scraps of knowledge here and there. I've read and I've heard things, as many others have, which have contributed to my enlightenment. We have today, certainly as yet in its infancy, television. And, why should it not be possible, and even very probable, that some time in the future television may be developed into just that which Mr. Smith describes as the "Telephonoscope?" To my mind, it seems very clear, even real. And why, once it is fully developed, should we not be able, with its aid, to explore the mysteries of time? To use it as we do ships and

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...railways and aircraft nowadays, and penetrate into the "Fourth Dimension?"

I understand, from what Mr. Verrill has to say, that "time" in reality does not exist; that what the human race calls time, is merely a convenience, which it has adapted to its use to keep check on itself, and that time as it could be applied to interstellar regions—space—to the infinite voids of our own and other universes, is the travel of light. Do I understand correctly?

Then, if that is so, and I do not doubt that it is, it should, at some future date, not be impossible, with the aid of adequate equipment to intercept light, or time in its "flight." I cannot very clearly conceive the idea that we may then be able to see very far, if at all, into Our, the World's own future, or even its past, from the earth itself; my argument, therefore, being, that the earth sends its own light out into space, rather than that it absorbs and holds it, and this, by my reasoning, would make it impossible, at least through such an agency as a "Telephonoscope," to visualize either the earth's past or its future in its present; that is, not to a greater extent than one complete revolution of our sphere upon its axis. However, it should be very possible to view at least the past of our neighbors of our own and other universes, at any point where we may be able to intercept "their" light.

For this reason, I want to make still another comment on the last story in the November issue: "The Machine Man of Ardhathia," by Francis Flagg. This tale, to say it mildly, taxes one's credulity to the point where I'm more than inclined to say it is ridiculous. Ridiculous even for a Sci-Fi FICTION story. Why, the author himself does not give it credence, but classes it as a nightmare, which surely it is. That the human race should ever "evolute" into machines, and still call itself "human," is inconceivable. That it should evolve into automata without sex, when every living organism from the lowest to the highest is conceded that quantity, and still be able to function and reason naturally? Well, I'm quite positive that Mr. Flagg's imagination must have run wild. The thing is too fantastic, and I venture to say, UN-Scientific. It may be possible to create living monsters synthetically, but hardly human-beings.

Well, Mr. Editor, I think I've about summed up my opinions pro and con. I just want to add this: By all means, keep up the "Discussions" department of AMAZING STORIES; for I think it has become one of the most vital parts of the magazine; hoping for a continuance of the splendid material you've been publishing, I am, always,
AMAZING STORIES' Friend and Booster,
S. Francis Kobischke,
Chicago, Ill.

[This very interesting letter we print with special pleasure, because the writer is fond of our discussions columns. There is nothing egotistic in our saying that we certainly admire them ourselves. Our magazine has the property of exciting much comment and criticism among its readers, and the freshness of the readers' ideas and their very original expression give them special value. We feel that we are authorized to praise what our readers give us.]

The fifth paragraph in your letter is especially interesting as a sort of a comment or illustration of the Dr. Mentiroso story. The letter brings out a peculiar point that while our magazine is published to amuse, it starts readers into new veins of intelligent reading and thinking, and some of the letters are so good, and their average is so high, that we almost think the discussions column is the best thing we publish.—EDITOR.]

INSPIRATION IN AMAZING STORIES MORE ILLUSTRATIONS WANTED

Editor, AMAZING STORIES:
I am a junior at the University of Missouri, and am doing most of my work in Chemistry and Physics and I find a great deal of inspiration in your magazine. I think you are doing a splendid work and I wish you all the success possible. I believe there is no better way to present the facts of science to the general public than in good fiction. Although I am very busy, I never miss reading an issue of your magazine entirely through. In the November issue I was profoundly impressed with *The Astounding Discoveries of Doctor Mentiroso* and would be very glad to see more stories of the same type. I was very glad to get the issue containing *The Time Machine* by H. G. Wells as I have tried for years to obtain that story and was never able to get it. I would be very glad to see more stories of pure science and less detective fiction. Concerning the ANNUAL, I would be very glad to see it a SEMI-ANNUAL provided you keep the quality up to that of the first one. I like the illustrations and would like to see more included in each issue.

Allen Hensley,
Daniel Boone Tavern,
Columbia, Mo.

[At last poor Doctor Mentiroso gets some words of warm appreciation. There is a lot in that story, and it has made more than one of our readers do some thinking. We may in the future put in more illustrations, but for the next few months AMAZING STORIES will probably keep approximately its present form. It pleases so many readers as it is, and we get so many pleasing letters, such as yours, that we are really reluctant to make any radical change for some time to come.—EDITOR.]



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THE IMPOSSIBLE JOURNEYS INTO
THE PAST

Editor, AMAZING STORIES:

This is in reference to *The Machine Man of Ardatia*. A splendid story: one in which there is an astonishing degree of the uncanny; a pulsating glimpse, one might say, into the secrets of the future. Bountiful imagination, not of the kind found in *The Moon Pool*, but of that intangible quality which fastens itself to our very cores and clings. This is imagination of the true quality. . . .

Yet there is something in this story that excites criticism; a drawback not at all, but a point of intense interest. Theory pure and abundant: that is the fourth dimension to the greatest extent of our knowledge. As the Greek philosophers suspected the existence of a continent beyond the Atlantic but separated from Asia; so are we in our relations to the fourth dimension; and no more than those ancient sages would have been able accurately to describe this America of ours, are we able to give a clear picture of the fourth dimension. Mere guesswork; conflicting statements and opinions. This of course offers vast fields to the writer with imagination; a field, fortunately, so uncertain, that no portions of it can be definitely pointed out as pitfalls. It is strange then, that Mr. Flagg should have fallen into one of these unsuspected pitfalls; especially when one considers the many acres of safe territory!

As a matter of fact, however much it may appear to the contrary, the story is laid 30,000 years in the future; although not from the point of view of a man living then. Now, one of these future inhabitants decides to visit the past: he selects that period which corresponds with our time; performs his journey successfully; and appears to Mr. Matthews. But observe the error: it is the future; the past is to be visited. Actually, 30,000 years in this past, Mr. Matthews, in reality alive, never saw or dreamt of a Man from Ardatia. Yet this descendant of ours is not only visible to Mr. Matthews, he converses with him. That is not all, however. Mr. Matthews is confined in an asylum because of his seemingly wild stories about a future man that is half machine. This occurs, not in the real past, but in that past which the Machine Man has conjured up for his own inspection; a past which should, in all respects, be identical with that which in reality was enacted. But observe again: 30,000 years before the time of the Machine Man, Mr. Matthews lived and died and never saw a Machine Man. Consequently (unless by an odd coincidence his mind actually deserted him), he could not have been placed in an asylum—at least for that cause. The story presents no mere revisiting of the past; but a complete remodeling, in which the destiny of a man is reenacted with changes. How can it be? The future man may turn back on time's road; but wherever he may stop, there he will not be visible. Or at least, if he is, it is not the same past. . . .

I fear that I cannot make myself clear; it is a difficult point to elucidate. Imagine a scientist falling into the past with a time machine; say he stops in 64 B.C. and visits the senate house in Rome a few minutes before Cicero launches into his first Catilinian oration. Once, in the past, Cicero actually sat thus; he raged thus; he took just this same amount of time to stand and prepare himself; he began his oration, say three minutes after he stood; spoke for just so long; and then went about his business, never dreaming of a person clad in the garments of the twentieth century. Yet, when the scientist I speak of visits the past, if he is visible to Cicero, the Roman will be astonished: it is a reaction which did not occur in the real past at the corresponding time, or at least not from this cause. As he is taken aback, Cicero will not commence his oration three minutes after standing: five minutes may elapse; or ten. But the moment this happens the past is altered; Cicero will be doing something that never actually occurred; so that our scientist will not be seeing the past, but an adumbration merely of it. It is evident from this that whoever sojourns in past ages will be totally invisible.

Which brings forth an interesting point: If man ever visits the past he cannot tread the earth; cannot stand in, and so displace, the air; cannot disturb anything in any way. For the moment he does so he will be altering the past, which is impossible. How can he feel? For if he touches something, he will be giving that thing a sensation which it did not actually have in the past. Is he able to hear or are the sounds of the past as impenetrably shrouded to his ear as they now are to ours? . . .

Another interesting problem: A gentleman with a family decides in 1950 A.D. to visit Rome during the epoch of Hannibal's passage over the Alps (217 B.C.). His family is cognizant of his departure; expects him back. But at 500 A.D. our explorer falls from his machine and finds it now impossible to return to his own epoch. He mourns his separation from his family; knows they are grieving for his loss. But, unable as he is to set foot anywhere or obtain food of any kind, what is there for him to do? As far as he is concerned, the world has slipped back almost twenty-five hundred years. Now, what of his family? They mourn him. Strange that people in 1950 and 500 A.D. should simultaneously bewail a separation occurring a few moments before! . . .

You see, this fourth dimension business is a tangle; he with a not careful foot will find himself in sore straits and will go mad trying to free himself! But of course, stories on this subject are

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the more interesting: the imagination has more opportunity to roam.

As I have remarked at other times, I am fond of your magazine. Very few of your stories have thus far bored me. Wells' *A Story of the Stone Age* is fascinating. I make no comments about Dr. Mentiroso until I have reread the story. And—can't you make at least a temporarily definite statement about *Amazing Stories* semi-monthly? I agree with one of your readers, that the *Annual* should reprint none of the stories from the monthly magazine, as this would deter many readers from purchasing it.

A thousand pardons for the length of this letter; but I've had so much to say . . .

Edgar Evia,
507 West 139th St.
New York City

[Several of our correspondents have objected to the very picturesque subject of voyages into the past and into the future, which to our present mind and thinking, are, of course, impossible. While, every author has a perfect right to use "poetic license" by exaggerating in his story, yet we are inclined to think that sometime, somewhere, in the history of the human race, it might yet be possible to either go forward or backward in time. Frankly, we acknowledge we don't as yet know enough about such things. If our correspondents would read a recent book by the eminent scientist—*An Experiment with Time* by J. W. Dunne—they would find much food for thought. This author, who has received an endorsement from no less an authority than H. G. Wells, tries to show in a more or less scientific manner, that certain stages of dreams actually lapse into the future. He claims to have good proofs of this. We profess that we have no opinion as to how this can come about, but again we say, the thing may not be impossible. We simply do not know enough about time and space to argue on such premises. How can we, if we cannot picture definitely either time or space?

We can argue that everything *must* have had a beginning. Yet, you can come right back in counter-argument that you positively know that there was no beginning of time, or matter, or space. How can we explain this, until we know more about these things? It would be rash to say that any prediction that includes space and time is impossible. We might agree with all critics who take the stand that if one did go back in time, it would be impossible to carry on a conversation with somebody who had long since died and disappeared. That may be perfectly true, and seems logical. Yet, there is no reason why, somehow, somewhere, a superior consciousness, in going back in time, could not confer mentally with a subject, and so to speak, live with him, or her, without deranging anything in the space-time event, as it happened then. Please don't misunderstand—this is positively not *Spiritualism*; call it a sort of telepathy if you wish. To make this plainer, let us draw this picture:

How does an invention come about? How does a great song come into being? Neither the inventor nor the composer could tell you. They would call it *inspiration*, and let it go at that. Suppose now that some traveler of time went back in a purely psychical manner, influenced the then living inventor or composer by giving him by means of psychical process, if in no other way, this inspiration. The traveler in time would thus get in contact with the present. Yet, the man in the present would not be disturbed at all physically, and while he might have some idea that the inspiration came from an outside source, still, nothing would be disturbed that would make the theory unintelligible.

All this is food for thought, and while it may not be 100% proof, this crude example will show that these things are really not so impossible as they seem.—EDITOR.]

CRITICIZING DR. MENTIROSO AND ESNESEON

Editor, AMAZING STORIES:

The specific object of this letter is to register as emphatic a protest as possible against continuance of stories like "*The Astounding Discoveries of Doctor Mentiroso*," by A. Hyatt Verrill. Perhaps I have been as infantile as all the rest in giving some consideration to his past stories. The present one, though, plainly shows him to be imposing on you (provided your editorial declarations on scientific fiction are sincere) and all your readers.

On page 753 of this story comes mention of "Esneson," the mysterious fourth-dimension control force. And the name, spelled backward, is nothing more or less than "Nonsense." Even the remarks about this force on the following page appear to have been written "with a tongue in the cheek," for they clearly apply either to some such fancied force or to the actuality of "nonsense."

It is not alone on this, though this should be sufficient, that I base my objection to the story.

The learned doctor in the story encircles the globe at approximately its own speed of turning, and yet has time to find out what is happening at distant points, Barcelona and Calcutta. Specific knowledge of names, as involved in the story, would be impossible, even at the speed mentioned, because it would have entailed a landing on the ground for a long enough period to have learned the intimate touches.

I have not gone into this deeply. It is not my purpose to enter into an argument. It is simply a statement that the author's claim is so far beyond even the strained credibility of the story,

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that it is impossible under the arbitrary bases upon which the story is built.

I want to protest against the author's attempt by more or less false methods, to confuse the reader between man's definition of time, and what may actually be. He has used our every day definition and his own as though they were the same, and has drawn most unreasonably syllogistic conclusions therefrom.

There are two kinds of time. First, the actual. Second, man's attempt to divide the actual into units by which he can measure the time he is aware of.

That man's attempt to define time and divide the globe into definite time areas is artificial, and actually incorrect, is overlooked, ignored and subordinated in the story. Man has tried to catch up with the dual movements of sun and earth, and has set his lines of demarcation around the world to bring sunrise and sunset at about the same clock time everywhere. Skipping a day in mid-Pacific is a natural outcome of this artificial division, since it has been quite beyond present human powers to carry mentally, or in written word, more frequent "time changes" than have been imposed.

The fallacy in Verrill's story is in using two definitions, apparently the same, but never possibly identical. I assume that Verrill, in bolstering up his absurdity, has gone sufficiently into the technicalities, that his statements of losing time around the earth one way, and gaining another, are correct. I haven't checked these. They're not important. The principle is.

If we could do as suggested in the story, travel to or think ourselves practically simultaneously, on an opposite side of the world from the present noon-day, it would be, because of the sun, near midnight. It would be either last night or tonight, as the earth moves. Still, in actual time, it would be simultaneous. It would not be either past or future.

Man's reckoning of sidereal time is not yet even correct. Pope Gregory found it necessary to correct our human calendar because it was some days behind the astronomical calendar. We still have a leap year arrangement to catch up with our present mistakes in arbitrary time computation. (This is only approximate.—EDITOR.)

But it would be rather absurd to say that people were living in the past when the Gregorian calendar came into effect. It is something of this human weakness in computation that Verrill uses with such false conclusion in his story.

Our intelligence and our sensory nerves determine how quickly—you rapidly and me slowly, perhaps—we are aware of things already happened. Who can say which one of us lives "past" or "present" in that sense.

Scientists figure so many "light years" for the light of a star to reach the earth. That light, in that theory, "is in the past." But it is a human computation, and open to the same error as the rest.

Possibly I have found real flaws in Verrill's story beyond his more or less open "kidding" of us. If not, that one point should be sufficient. Your magazine cannot survive on that basis, except with morons, and if you cater to that class—you will continue to succeed, probably to gain in success.

Wm. C. Etheridge,
 1200 West Third Street,
 Cleveland, O.

[So much has been said about Dr. Mentiroso, that we are inclined to feel that since his name makes him a Lying Phenomenon, and he deals in nonsense turned backwards, our readers should be satisfied with this, and merely regard it from a scientific aspect, as an interesting bit of scientific nonsense. Difference of time has done so much in the world, that it certainly is a good basis for a story. If Mr. Verrill's critic will study his story, he will find a great deal in it which he did not suspect existed within its pages.—EDITOR.]

DR. MENTIROSO'S TRIPS INTO OTHER TIMES

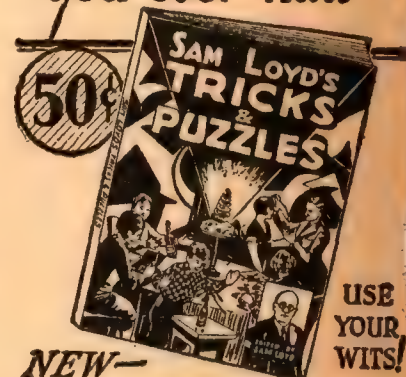
Editor, AMAZING STORIES:

I have read with considerable interest the story, in the November issue of "The Astounding Discoveries of Dr. Mentiroso" by A. Hyatt Verrill.

I hold as "Don Alfeo" states in the story, that the figures and analogies given by "Dr. Mentiroso" are chiefly confusing and befuddling, and do in no way prove, or even illustrate passage into past or future time.

Take for example the case in which the supposed voyager leaves Lima at noon of a Monday, and traveling eastward at a rate of 24,000 miles per hour, returns to Lima, after circumnavigating the earth, 5½ hours before the supposed actual time of leaving. Evidently travel into the past has been accomplished. But, mark how it has been done. The voyager arbitrarily altered his time-piece, according to the time existent on the various meridians of the earth, over which he passed. Now, said existent time over the meridians has arbitrarily been determined by man as proportional to the earth's rotation and relative to the times determined by the meridians. Now in another instance, Dr. Mentiroso states that Fourth Dimensional space, or time is absolutely not arbitrarily determined, nor is it relative to any material body or mechanical force, but is an entity in itself, giving no concrete impression to the mind, because

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the mind has not yet evolved to a state capable of receiving such impressions. Hence, the "doctor" has given arbitrary proof of a non-arbitrary matter. Is not this rather inconsistent? Is such proof within the bounds of science?

I can well understand how the past may be reached, by "chasing" and catching up with light rays, which have been reflected from objects having existence in the past, and have gone into the future infinitely faster than we, of this earth. If the means of traveling immeasurably faster than light can ever be accomplished, which may be possible, in view of the fact, of our increasing knowledge of etherial forces, then surely the past could be re-seen in the aforesaid manner.

But how can one project one's self, say, 10,000 years into the future and attempt to visualize world conditions at that time, when at the moment the future time is reached, the actual world is ten thousand years in the past? i.e. considering the time of travel as practically instantaneous. Can any Fourth Dimensional expert explain this? In fact, seeing that light rays of the past have escaped into the future due to their tremendously greater speed, as stated before, would not traveling into the future be really the going into the past?

If possible, Mr. Editor, could your opinion be had on these questions?

However critical this letter, I assure you, I enjoyed the story in question, and think highly of the AMAZING STORIES MAGAZINE.

Ralph Grossman,
Saval des Rapides, Que., Canada.

[Perhaps Mr. Verrill's explanation in our December issue has cleared up some of your troubles about what we certainly consider the rather remarkable travels of Dr. Mentiroso. Like several others of our readers, Mr. Verrill has given you food for thought.—EDITOR.]

DR. MENTIROSO AND WELLS

Editor, AMAZING STORIES:

The first number of AMAZING STORIES I read was this year's November number, and having thoroughly read the magazine, comments and all, I decided to write and give my idea of the merits or faults of at least this number. I suppose I have no business writing so soon, but when one becomes either enthused or disgusted at a thing, he can't wait to tell what he thinks of it.

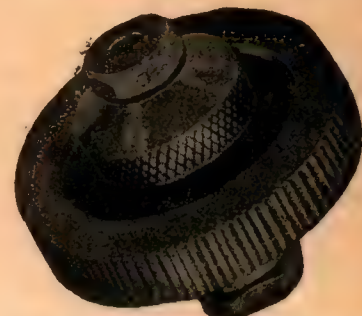
I found it very interesting, although as a whole not easy, reading. I say "as a whole" because the only story not really worth while was "The Astonishing Discoveries of Doctor Mentiroso" by Hyatt Verrill. The stone age story and "The Machine Man of Ardathia" were highly interesting, and I do not feel in a position to comment upon "Treasures of Tantalus," having read only the last part.

In my opinion, "The Discoveries of Doctor Mentiroso" was nothing else than a plain fairy tale. No—on the second thought, it was a fairy tale not plain, but doctored up with a lot of complicated nonsense to make it look scientific. When I finished reading it, I did as you said—I took a deep breath and came up for air; and further, as I am human, my head was in a whirl. You predicted my actions and sensations exactly, but that wasn't hard—you just had to describe your own sensations when you finished reading, my dear editor. I read the story three times, (what torture!) to see if I could make anything sensible out of it; but that was a foolish thing to do. How could you take sense out of nonsense? The whole plan of turning back or forward time, of going into the future or the past, is based upon the fact that the clocks are not the same in all parts of the earth. In his wonderful machine, Doctor Mentiroso can go faster than the earth; it is true that he could beat the clocks that way, but not time itself. The machine that the writer "can not describe" is just about impossible. It wouldn't be so bad if Verrill gave us some idea how the contraption was made, but he didn't; he just crawled out of it by saying it was a secret.

On the other hand, the whole story may be a comic tale, full of irony and not meant to be sensible. If it is, the laugh is on me, for I am not quick to detect irony. But even at that, the tale would be rather boring and rather complicated; a better idea would have been to simply have the doctor turn back his watch and say that it was two hours later. Imagine beating time by going around the earth so fast that the clocks were kept time with, and then saying that you practically stopped time entirely! And another thing, I don't like the idea of explaining most of the hokum by "the fourth dimension." The one word in the story I am in sympathy with is "damnable" when applied to the fourth dimension. But enough for that. Now for the good point of the story: It ends.

Unfortunately, this story was the first one I read when I got the magazine. I was just about to throw away the book when I decided to see if the other stories were like that one. I was delighted to find that they weren't. After reading over "A Story of the Stone Age" I decided that it was about the most entertaining and instructive piece of work I had read in a long while. Mr. Wells certainly knows how to present a story in the best form. I read some criticism of that author's work which was mainly directed against

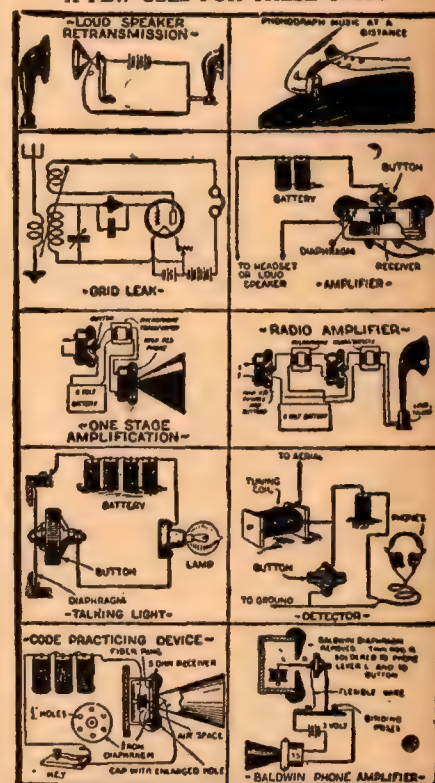
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"DR. MENTIROSO" AND "THE WAR OF THE WORLDS" AGAIN. A LETTER OF USEFUL CRITICISM

Editor, AMAZING STORIES:

O, that clever Mr. Hyatt Verrill! In his "Discoveries of Doctor Mentiroso" he has got me all twisted and tied in a knot, in regard to time. I don't know whether the present is now, or the middle of next week, or the next century, or April Fool's Day in 1888. Perhaps I haven't been born yet, or else I've been born and died already. I wouldn't be at all surprised to see tomorrow's newspapers dated more than a year ahead and containing the inaugural address of president-elect Al Smith; or, if I lived in Egypt, to see Cleo riding in state to meet Mark Antony. But who knows? Perhaps I am in Egypt. Our clever time-jugglers and fourth dimensional bronco busters have got us so mixed that we don't know when or where we live—if at all. But since you have promised that Mr. Verrill will clear up this mess he has got us into, in the next issue, I shall not throw away my watch, clock and calendar yet for a while. I have no doubt that he can extricate us just as cleverly as he got us in, though even he may need a swig of brain-clearing "white mule" during the process and a rest cure afterwards. But all joking aside, it is a good story, and so different too.

Your entire November number is exceptionally good—the best yet. (I've never missed a number.)

From both a literary and scientific standpoint, I think "A Story of the Stone Age," by H. G. Wells, is the best story you have ever published. I don't see how your reader-critics can find much fault with that story. While Wells, like Edgar Allan Poe; (who is perhaps our greatest American author), is often morbid and grotesque, he seems to have had himself well-in-hand, here.

But while Mr. Wells is undeniably one of the great writers of the age, I agree with some of your readers that "The War of the Worlds" is far from perfect, though I wouldn't call it "rotten." (I read it twice, and I like good literature too well to read a rotten story through once, saying nothing of twice.) However, there are pages of dry agony of detail in this story that most of us don't give a hang for. While it is essential that we know what the English did, felt and suffered, enough is enough, and we are interested mostly in the Martians.

As Mr. Riordan points out, the English army made an incredibly poor showing against them, and I would add, were too slow in getting started. Partly, but not altogether, in extenuation of Mr. Wells, we should not forget that the story was written many years ago, when military science was far from being as efficient as it is now.

The Martians are described and illustrated resembling giant slugs, or perhaps more like giant mice, with numerous long, slender tentacles or antennae instead of hands. How could slugs or mice, even possessing nine tentacles, ever evolve a super-intellect? Do the devil fish of our seas show any promise of ever doing so? Haven't we, with our hands with opposable thumbs far outstripped them in evolutionary advancement? Rather, with our increasing intelligence, we humans may learn a way to exterminate the devil fish, in time not so very remote.

But as I said, I read the story twice, and I was glad you published it.

"The Treasures of Tantalus" by Garret Smith was an exceptionally good story. One of the best you have published, I think. I also liked "The Machine Man of Ardatia" by Francis Flagg. Mr. Paul, the artist, had a difficult job, illustrating this story, and he did it strikingly and ingeniously, but with at least one fault, I think. "The Machine Man" is supposed to be mostly intellect, possessing little of the animal instincts. But Mr. Paul has given his enormous head a wide, full brain base, while the forehead, the seat, supposedly, of intellect, a comparatively low and receding slope. As a rule, we know that the lower an animal is in evolutionary development, the wider its brain base and the lower its forehead. Not that "The Machine Man" has not more forehead than we have, but it is out of proportion to the rest of his head. However, Mr. Paul is a splendid artist.

I don't regard adverse criticism as destructive, but constructive. If well founded, it makes your authors and artists more careful and may give them new ideas. If not well founded, it gives you a chance to point out to your readers their errors. In either case, criticism is educational and entertaining. I enjoy the letters from your readers and your replies second only to the stories, themselves.

Whether you publish AMAZING STORIES once or twice a month, count on me as a regular reader. And the more illustrations the better.

M. B. Butler,

Box 154 Taft, Calif.

[The fact that Dr. Mentiroso got you "all twisted and tied in a knot" shows what an excellent lot of illustrations of terrestrial time and time differences on the different meridians, he has given. There is, undoubtedly, something quite puzzling in this subject and it is one which interested many of our readers to the extent illustrated by the fact that we received so many letters, concerning the "Lying Doctor." We hope, however, that Mr. Verrill, in his supplementary note has cleared up some of the mystery.—EDITOR.]

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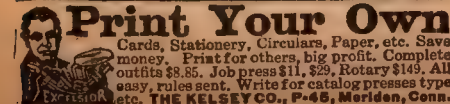
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A CURIOUS AND "OLD FASHIONED" POINT OF VIEW

Editor, AMAZING STORIES:

I am writing this in behalf of the readers of your magazine who are not yet of age to do as they please. I have tried to get several of my friends to read your magazine by lending out old copies of mine; when their parents find these copies they refuse to let them even finish the stories.

I am writing mostly to see what you could do to make it so our parents would allow us to read AMAZING STORIES. My suggestion is that you change the name to Scientificism and make the cover design a little more calm. Our old-fashioned parents with their old-fashioned ideas make it hard for us. I think that if these changes were made it would increase the sales and subscription rate. Personally I like your magazine on the whole as it is.

I think many of your readers agree with me. I wish you would print this and let them give their opinion. I want to see AMAZING STORIES a bigger and better magazine. Perhaps voting on a new name would help some in its advance.

Miss Gertrude E. Hiser Chicago, Ill.

[We believe that if old-fashioned parents would read the stories in any issue of our magazine, they would get over their prejudice, which as you describe it, appears to be based on ignorance of what it is that we are publishing. You know, and we know, that AMAZING STORIES "Scientificism" is excellent reading for young people, and we know, that AMAZING STORIES is excellent reading for young people, and the objection to the name "Scientificism" is that it is not in the dictionary. It is only a recently coined word.—EDITOR.]

WELL DESERVED PRAISE FOR OUR AUTHORS

Editor, AMAZING STORIES:

I am a subscriber to AMAZING STORIES and have every copy of this truly amazing magazine, dating back to the first one published. Furthermore, I have read practically every story you have published therein, lack of time only preventing me from reading them all.

I think you are very wise in maintaining a "Discussion" Department, wherein your readers may freely voice their opinions and criticisms of your publication, especially as it is a new magazine, and should derive much benefit from really constructive criticism.

Now I should like to express a few of my own opinions on the subject, since so many others are doing so.

I heartily wish to endorse Mr. Earle P. Brown's opinion (given in Discussions, November, 1927 issue) that the "Moon Pool" is the best story you have yet published. I enjoyed every bit of it, and was really sorry to see the end of it.

"Around the Universe" by Ray Cummings, was splendid. Also the "Face in the Abyss," by A. Merritt. Each of these stories gave proof of true intellect and great imagination of its author.

Please put down my vote as being unqualifiedly for more and better stories of the Fourth Dimension type, and also for stories dealing with mental telepathy, which is, after all, only a higher and more intelligent method of communication, although immensely far ahead of any present-day method of earth communication (such as spoken language; wireless and wired radio; telegraph, etc.).

The average layman or day-laborer on this planet is so deficient in scientific knowledge, that it is easy to see why "The Machine-Man of Ardatia" (by Francis Flagg) should compare the hero of the story and other present-day earth-men to the lower animals. Such low types of intelligence will, no doubt, vanish from this planet in time, even as the Paleolithic, Cro-Magnon, and Neanderthal Man has each in his turn given place to more intelligent beings. (Notably the Nordic race)

Stories extending into the supposed future life of the earth I find very interesting, although darn scarce. Why not have more stories of this type? I am sure there will be quite a number of readers who would welcome good stories on such subjects. I think the trend of such stories should be on the whole optimistic, even if they don't depict the millennium.

I hope this letter has not bored you too much, and would really appreciate seeing it published in your Discussion Department in some near future issue. I should also like to know what other readers think of my opinions on the subject.

C. H. Osbourne,

17 N. 5th St., Fulton, N. Y.

[We are glad you like our discussion department. We are delighted to have criticism either constructive or destructive, because it's the best possible proof that our work is having due effect upon our readers. We see you are hopeful of the intelligence of mankind increasing. Personally, we feel that it is rather his achievements that have increased, and you must not restrict the highest intelligence to Nordic races. France, Italy and Spain, have given the world some of its greatest intellects, and while the Nordics of old Scandinavia got as far as Greenland, and possibly as far south as Nova Scotia, the real effective discovery of America, should be given to an Italian. We feel that there is little confidence to be placed in the idea that the old Viking ships ever got down to Martha's Vineyard.—EDITOR.]



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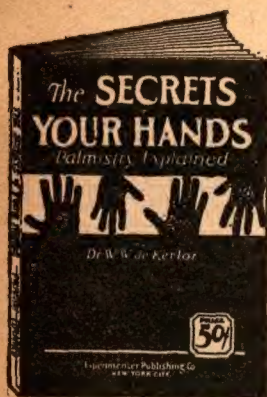
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A BOY'S LETTER

Editor, AMAZING STORIES:

I have been an ardent reader of AMAZING STORIES ever since the second issue. I have just bought the November, 1927 issue, and am reading "A Story of the Stone Age," by H. G. Wells, and somehow I cannot get interested in it.

It was the same way with the "War of the Worlds," by the same author. I read the first issue, but in the second I could not find much to hold my interest, and I never finished it.

These two stories and "The Plattner Case" I could not get interested in. I am, however, going to finish "A Story of the Stone Age."

Every other story that has appeared in this magazine has been truly—wonderful!

I would like to make a list of the stories that is, the serials that I liked best.

1. "The Second Deluge."
2. "A Columbus of Space."
3. "The Land That Time Forgot."
4. "The Moon Pool."
5. "Treasures of Tantalus."
6. "The Island of Doctor Moreau."

As for stories complete in one issue:

1. "The Master Mind of Mars."
2. "Around the Universe."
3. "The Ultra-Elixir of Youth."
4. "The Radio Ghost."
5. "The Shadow on the Spark."
6. "The Man Who Could Vanish."

I will not take any more space to tell you more, because if I did I would put down every story that you have published excepting those three that I have mentioned.

I like the magazine once a month, I like the illustrations as they are now, and I like one humorous story every other month.

The humorous stories are only predictions of what will be in a few years.

I live in a hotel, and there are several scientists who live here. They and I often have long talks together. I am deeply interested in all scientific subjects. One of them takes AMAZING STORIES regularly as do I, and I am glad that I have found some one that likes the same subjects as I do, for we can have heart-to-heart talks together. I am also trying to induce others to subscribe for your very wonderful and amazing magazine—AMAZING STORIES. Your reader till "Doomsday."

P. S. I would please like to know how many atoms make a molecule?

Diek Kardel,

Chicago, Ill.

[We think you should have finished "The War of the Worlds." It is not very long, and it is told in such a way that the very detail increases its picturesqueness. We are very glad to find you approving of the humorous stories, to which a number of our readers have objected. With regard to your postscript, it is not known how many atoms make up a molecule. As a working theory, however, some molecules are taken as containing one atom, others two, some three, such as ozone, and a few four. But these numbers are properly ratios, not absolute figures, although one is apt to overlook that fact.—EDITOR.]

MORE ABOUT THE SCIENCE CLUB

Editor, AMAZING STORIES:

I have just finished reading Mr. Lindgren's letter and the editorial comment on same, and I must say that I am very favorably impressed by its plans.

Whether a membership fee is charged or not, I think that each member should be a subscriber to SCIENCE AND INVENTION or AMAZING STORIES, or both. I, for one, would not mind a membership fee.

Among other things, the club could go into scientific discussions of the more popular problems suggested by AMAZING STORIES. Also the club could be instrumental in solving such problems as the freezing of fish, frogs, and other animals. Recently, a rather heated discussion took place in the "North West Farmer," a Manitoba paper, as to whether the gopher (a ground squirrel) suffered death as a result of freezing, or not. I would like to clear the matter up, and am planning a few experiments during the coming winter.

Club distinctions or degrees might be conferred for worthy effort.

Short articles on scientific subjects, by well-known scientists, as well as a "Family Album" of noted scientific and scientific writers should prove a valuable addition to AMAZING STORIES.

Speaking of articles, the Canadian Government has imposed a tax of 25 per cent on all-fiction imported magazines. This tax, I believe, was aimed at confessional types, but of course no line could be drawn. By making AMAZING STORIES partly scientific, the tax on our favorite magazine might be avoided.

However, tax or no tax, I would not be without A. S. at any price.

I am looking forward to the Science Club as a pleasurable and profitable avocation for the coming winter.

J. C. McAllister,

Yellow Grass, Can.

[The question of the freezing of fishes has been treated at some length in our sister magazine, SCIENCE AND INVENTION, and we are sure that any new investigations on that subject would be gladly received by the Editor of that magazine. Your suggestion for the family album is a good one, if we are ever able to carry it out.—EDITOR.]

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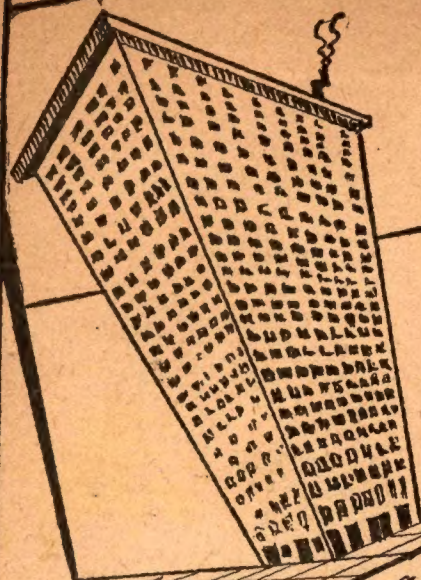
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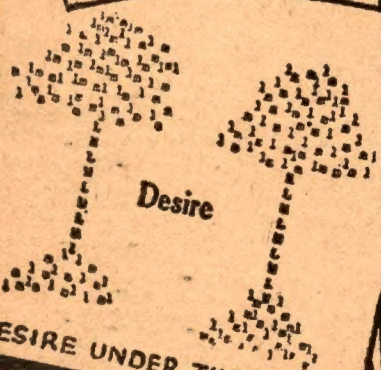
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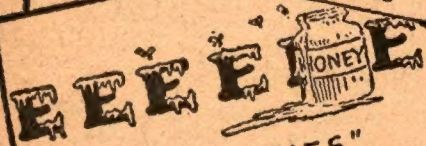
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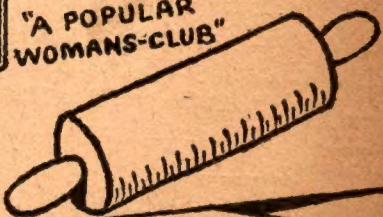
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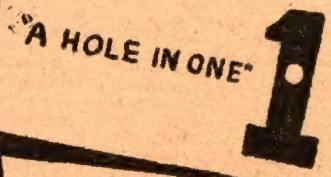
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a supposedly weary descriptions and long drawn-out passages. I do not doubt that some of the paragraphs are dull to some readers; but those readers are ones who are impatient to get to the end, want continual action, and do not take well Wells' style of writing. The only thing I don't like about the story was that it ended rather abruptly.

I haven't much to say about "Treasures of Tantalus" except that it was rather long drawn out and could be condensed into a few pages. The material and plot (the plot wasn't very clearly defined) were excellent, and although one cannot obtain very much satisfaction from the summary of the first part, I have no doubt that the "Telephonoscope" was scientifically possible.

The remaining story, "The Machine Man of Ardathia," was vivid and highly imaginative. It might be made more realistic by leaving out that preface and possibly the end where the writer is in an insane asylum. In the beginning it suggests entirely too many reasons why the story might not be true, such as having dreamed it, and saying, "Of course, I may be lying." And here again is the "damnable fourth dimension" although in this case it is not nearly as bad nor does it cover up such a multitude of sins as in Verrill's story. At least, it is explained better in this tale. The story could easily be longer, though.

Now that I have summed up what I think of the articles in your magazine, I notice that the greater part of this letter is given over to the stories' bad points. To tell the truth, I think that the good points really outdo the other ones, even though the Doctor Mentiroso story is in the magazine. It is human nature to criticize. As one reader says in the "Discussions," magazine readers are hard to please. They are; and I hope you'll forgive me for succumbing to that fault.

I would like to see this letter in print, and know the other readers of AMAZING STORIES agree with me about the stories, especially Verrill's. So, too, I am always ready to stand up for G. Wells. I have always liked his stories. Thank you very much for the opportunity of being able to express my opinion of the magazine.

Donald L. Cumming,
639 Wyoming Avenue,
Elizabeth, N. J.

[We are afraid that it will exceed Mr. Verrill's wits to tell us how "the contraption" was made which could go through space faster than the light, circumferential velocity. It must be admitted, that for a simple subject in mathematics, the subject of difference of time occasions much confusion, but the best proof of the interest of Mr. Verrill's story lies in the many criticisms which it has elicited. We want criticism, and after the way you have treated poor Dr. Mentiroso, we are glad to find you a champion for Mr. Wells. We say that you would even like to have had him along his narration. This is certainly a comment. If you will run through the discussions you will find many different points of view among our readers, and your last paragraph will be pretty well taken care of. We are always very glad to see opinions of our magazine. They are our guides, and, in some cases, encouragement.—EDITOR.]

THE SCIENCE CLUB — SOME FAVORITE STORIES

Editor, AMAZING STORIES:

First, I wish to say that I am heartily in accord with Donald Campbell of Chicago for a lowering of the age limit on the International Science Club. I am fifteen, also, and further, I would like to receive more specific information on the subject, as when it will start and the dues, etc. I think the idea for a neighborhood chapter would be very successful, at least in my case, for I have several friends in my neighborhood who have a liking for all sort of thing. We already have established an Airplane Model Club and would like to have an edition of science.

Next, I would like to comment on a few of the stories published in A. S. I suggest that you view more of Garret Smith's stories. The "Treasures of Tantalus," was a perfect masterpiece, in my estimation. In the first place, I like a good detective story and this one is particularly interesting because the author grips and holds your interest throughout the narrative, and also it has a small amount of interesting science in it. Some of the stories that I liked very much were "The Retreat to Mars," "The Green Splotches," and "The Man Who Could Vanish."

In regard to illustrations I favor one major illustration at the beginning of the story because if placed at intervals throughout the story it becomes less interesting, at least to me; I cannot say for other people.

Yours for a bigger and better (if possible) AMAZING STORIES.

Wilbur S. Jones,
P. O. Box 147,
Little Rock, Ark.

[We can only say what we told our readers before; the Science Club is in the hands of our readers. They must organize it among themselves, and we will do everything we can to assist them.

As we select our stories with a great deal of thought, it is a great comfort to find our efforts appreciated as they are by you. It's an agreeable breaking in on the occupations of the Editor who, the radio broadcasters say, "is appealing to an unseen audience."—EDITOR.]

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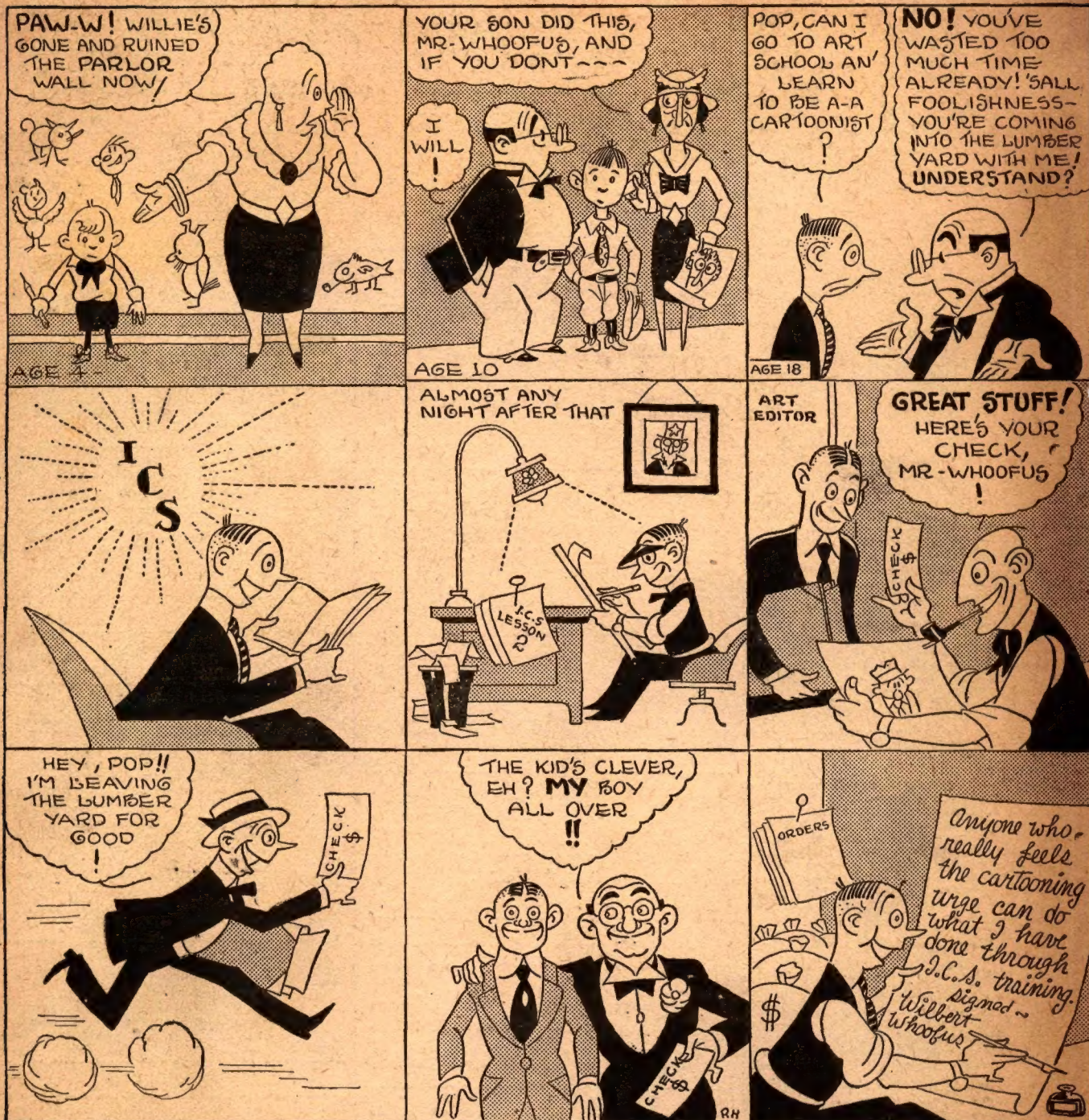
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